

815 North Jackson Street
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423-744-2780
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CITY OF ATHENS

**Matthew Marshall,
Purchasing Director**

NOTICE OF DEMO EXCEPTIONS

The following exceptions will be allowed for the bidding procedure;

1. No performance bond will be required if a demo vehicle is submitted.
2. Delivery must be within 15 days of contract signing on all demo's
3. Mileage must be less than 15,000 thousand miles on demo units.
4. All demo's must have a pre-2010 engine.

Bidder's company name, signature, and date indicate that these terms and conditions have been read, understood, and accepted.

DATE: _____

BIDDER'S COMPANY NAME _____

COMPANY REPRESENTATIVE:

(Printed Name)

(Written Signature)

TELEPHONE _____

FAX _____

EMAIL _____

THIS DOCUMENT MUST BE SIGNED AND RETURNED WITH BID

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Matthew Marshall
Director of Purchasing

CITY OF ATHENS
REQUEST FOR BID NO. 1561

The City of Athens will receive sealed bids at the Athens Municipal Building, Purchasing Department, located at 815 N. Jackson Street, Athens, TN 37303, until 2:30 p.m. ET, Wednesday April 25, 2012, at which time and place bids will be publicly opened and read aloud for ***Fire Engine with Demo Option*** as described in the attached Specifications No. 12-38. (Note: Late bids will not be considered under any circumstances. Bids will be accepted if the date/time stamped by the Purchasing Department is 2:30 p.m.; date/time stamps of 2:31 or later will be rejected.)

Price shall include complete unit delivered to the City of Athens Municipal building located at 815 North Jackson St, Athens, Tennessee 37303.

PARTS MANUAL: Bidder shall furnish complete parts, service & repair manual(s) to be included as a part of the bid with no additional cost to the owner. Paper or DVD form is acceptable.

\$ BID AMOUNT:

1. Total Bid amount for the Fire Engine in accordance

with Specifications No. 12-38.

2. Is this a Demo Fire Engine?

3. What Discounts are available for full prepayment of the vehicle? (amount or percentage of total cost).

4. What is the timeline from payment to delivery of the apparatus?

5. If this is a Demo will this engine be ready two weeks from payment?

Option 1:

TRADE-OPTION: (Asset #1389) 1988 Emergency One fire Truck. VIN: 1F9BBAA86J1037548. This unit may be inspected at the City Hall Fire Station 1. 815 N. Jackson St. Athens, TN Monday through Friday at 3:00 p.m. For an appointment, the contact number is (423) 744-2760.

LESS TRADE IN \$ _____

NET PRICE WITH TRADE IN \$ _____

ALL BIDS MUST BE SEALED, PROPERLY IDENTIFIED, AND RETURNED WITH THE "BID RETURN ADDRESS SHEET" (INCLUDED IN THIS BID PACKAGE) TAPED TO THE OUTSIDE FRONT OF THE ENVELOPE/PACKAGE THAT YOU ARE RETURNING.

The City of Athens reserves the right to reject any and all bids or waive any informalities and to accept any proposal deemed to be in the best interest of the City.

Sign here

COMPANY _____ DATE _____

BY _____
(Printed) (Signature)

PHONE _____ FAX _____ EMAIL _____

Specifications for New or Demo Fire Engine 12-38

Part 1. Cab and Chassis

Part 2. Fire Engine Box

Part 1.

		Description
0100-007	MODEL	Metro Star/Or similar Pumper
8012-019	CUSTOMERS / OEMS	or Similar
8011-011	MODEL YEAR	Model Year - 2011
8001-001	COUNTRY OF SERVICE	Country of Service United States Of America
8006-009	APPARATUS TYPE	Apparatus Type Pumper
8008-001	VEHICLE TYPE	Vehicle Type Straight Truck
0104-001	AXLE CONFIGURATION	Axle Configuration 4x2 (Rear Axle Drive Only)
0101-003	GROSS AXLE WEIGHT RATINGS FRONT	GAWR Front 20000#
0102-004	GROSS AXLE WEIGHT RATINGS REAR	GAWR Rear 27000#
8010-002	PUMP PROVISION	Pump Provision Driveline Midship
1000-016	CAB STYLE	Cab Style ELFD 10" Raised Roof
1501-002	CAB FRONT FASCIA	Cab Frt Fascia Classic
1518-012	FRONT GRILLE	Cab Frt Grille Classic Styled
1521-002	CAB PAINT EXTERIOR	Cab Paint Exterior Two Tone
1533-001	CAB PAINT MANUFACTURER	Cab Paint Manufacturer PPG
1522-080	CAB PAINT PRIMARY/LOWER COLOR	Cab Paint Primary/Lower Color PPG Red FBCH 71528
1523-244	CAB PAINT SECONDARY/UPPER COLOR	Cab Paint Sec/Upper Color PPG White FBCH 2185
1524-002	CAB PAINT EXTERIOR BREAKLINE	Cab Paint Exterior Breakline Classic
1515-005	CAB PAINT PINSTRIPE	Cab Paint Pinstripe 1/2" Black Temporary
8013-014	CAB PAINT WARRANTY	Cab Paint Warranty 2011 (10) Year/100,000 Miles
1334-022	CAB PAINT INTERIOR	Cab Paint Int Zolatone Onyx Blk
1005-001	CAB ENTRY DOORS	Cab Entry Doors (4)
1101-001	CAB ENTRY DOOR TYPE	Cab Entry Door Type Full Length
1540-143	LH EXTERIOR REAR COMPARTMENT	LH Ext Rr Cmpt 66"H x 17"W w/84" Rev Hng Dr/Fwd Rr Wall Structure
5313-005	LH EXTERIOR REAR COMPARTMENT LIGHTING	LH Ext Rr Cmpt Lt LED Strip Lt SoundOff Signal 43"
1548-005	LH EXTERIOR COMPARTMENT INTERIOR FINISH	LH Exterior Compartment Interior Finish Zolatone Onyx Black
1541-143	RH EXTERIOR REAR COMPARTMENT	RH Ext Rr Cmpt 66"H x 17"W w/84" Rev Hng Dr/Fwd Rr Wall Structure
5345-005	RH EXTERIOR REAR COMPARTMENT LIGHTING	RH Ext Rr Cmpt Lt LED Strip Lt SoundOff Signal 43"
1549-005	RH EXTERIOR COMPARTMENT INTERIOR FINISH	RH Exterior Compartment Interior Finish Zolatone Onyx Black
8004-007	CAB STRUCTURAL WARRANTY	Cab Structural Warranty 2011 (10) Year/100,000 Miles
9001-001	CAB TEST INFORMATION	Cab Test Information Crash Test ECE-29
5000-001	ELECTRICAL SYSTEM	Elec System 12V DC
5006-002	APPARATUS WIRING PROVISION	Apparatus Wiring Provision (8) Circuit Panel
5004-003	LOAD MANAGEMENT SYSTEM	Load Management System Class 1 Total System Manager
5622-002	DATA RECORDING SYSTEM	Data Recording Sys Vehicle Data
5031-001	POWER & GROUND STUD	Pwr & Gnd Stud 40A Batt Dir
5030-002	AUXILIARY POWER & GROUND STUD	Aux Pwr & Gnd Stud Bhd Sw Pnl 40A Mstr Sw

5032-002	ADDITIONAL POWER & GROUND STUD	Addl Pwr & Gnd Stud Bhd Sw Pnl 40A Mstr Sw
5011-001	EXTERIOR ELECTRICAL TERMINAL COATING	Exterior Electrical Terminal Coating Spray On Plasti Dip
1701-034	ENGINE	Engine Diesel 425HP Cummins ISL must be pre 2010 year
1329-001	CAB ENGINE TUNNEL	Cab Engine Tunnel Small/Medium
1731-002	DIESEL PARTICULATE FILTER CONTROLS	DPF Ctrl Regeneration Sw & Inhibit Sw
1718-002	ENGINE PROGRAMMING HIGH IDLE SPEED	Engine Programming High Idle Speed 1250 RPM
1719-003	ENGINE HIGH IDLE CONTROL	Engine High Idle Ctrl Automatic
1710-001	ENGINE PROGRAMMING ROAD SPEED GOVERNOR	Engine Programming Road Speed Governor Enabled
1713-002	AUXILIARY ENGINE BRAKE	Aux Engine Brake Jacobs
1708-005	AUXILIARY ENGINE BRAKE CONTROL	Aux Engine Brake Ctrl Off/Low/High Sw Pnl
1715-001	FLUID FILLS	Fluid Fills Fwd For Med Displacement Cap
1720-003	ELECTRONIC ENGINE OIL LEVEL INDICATOR	Elec Engine Oil Level Indicator
8002-001	ENGINE WARRANTY	Engine Warranty Cummins (5) Year/100,000 Miles
1707-028	REMOTE THROTTLE HARNESS	Rmt Throttle Harness PSG Fire Rsrch In Control 300/400 Side Mnt
1721-001	ENGINE PROGRAMMING REMOTE THROTTLE	Engine Program Rmt Throttle Off
1727-001	ENGINE PROGRAMMING IDLE SPEED	Engine Programming Idle Speed 700 RPM
2704-002	ENGINE FAN DRIVE	Engine Fan Drive Clutch
2701-005	ENGINE COOLING SYSTEM	Engine Cooling Sys Medium Disp Cap
2708-001	ENGINE COOLANT	Engine Coolant Extended Life
2706-003	ELECTRONIC COOLANT LEVEL INDICATOR	Elec Low Coolant Level Indicator
2705-002	ENGINE PUMP HEAT EXCHANGER	Engine Pump Heat Exchanger
2709-001	COOLANT HOSES	Coolant Hoses Silicone
2801-001	ENGINE AIR INTAKE	Engine Air Intake Filtration and Restriction
2901-012	ENGINE EXHAUST SYSTEM	Eng Exhaust Sys Under Frm RH Outboard
2902-010	ENGINE EXHAUST ACCESSORIES	Engine Exh Acc Exh Temp Mitigation
1801-015	TRANSMISSION	Transmission GEN IV-E Allison 3000 EVS
1806-001	TRANSMISSION MODE PROGRAMMING	Transmission Mode Programming 4th Startup/5th Mode
1811-001	TRANSMISSION FEATURE PROGRAMMING	Transmission Feature Programming I/O Package 198/Pumper
1815-002	ELECTRONIC TRANSMISSION OIL LEVEL INDICATOR	Elec Transmission Oil Level Indicator
1807-003	TRANSMISSION SHIFT SELECTOR	Transmission GEN IV-E Shift Sel Key Pad/Push Button
1814-002	TRANSMISSION PRE-SELECT WITH AUXILIARY BRAKE	2nd Gear Pre-Select
1808-001	TRANSMISSION COOLING SYSTEM	Transmission Cooling System
8005-001	TRANSMISSION WARRANTY	Transmission Warranty Allison (5) Year
3001-001	DRIVELINE	Driveline Spicer 1710 HD
3005-002	MIDSHIP PUMP / GEARBOX	Midship Pump Jackshaft Only
3008-085	MIDSHIP PUMP / GEARBOX MODEL	Midship Pump/Gearbox Model Waterous CSUC20
3009-007	MIDSHIP PUMP RATIO	Midship Pump Ratio 2.27:1

3048-007	MIDSHIP PUMP GEARBOX DROP	Midship Pump Gearbox Drop Waterous "C"
3010-1000	MIDSHIP PUMP LOCATION C/L SUCTION FROM REAR AXLE	Midship Pump Location C/L Suction 100"
3109-021	FUEL FILTER/WATER SEPARATOR	Fuel Filter/Wtr Separator Fleetguard FS1003 w/Lt & Alarm
3111-001	FUEL LINES	Fuel Lines Nylon
3104-003	FUEL SHUTOFF VALVE	Fuel Shutoff Valve at Tank and at Primary Filter
3101-015	FUEL TANK	Fuel Tank 65 Gallon
3102-007	FUEL TANK FILL PORT	Fuel Tank Fill Port RH Mid/LH Rwd
2401-003	FRONT AXLE	Frt Axle Meritor MFS 20000# Beam
8059-007	FRONT AXLE WARRANTY	Front Axle Warranty Meritor 2011
2405-001	FRONT WHEEL BEARING LUBRICATION	Frt Wheel Bearing Lube Oil
2502-002	FRONT SHOCK ABSORBERS	Frt Shock Absorbers Bilstein
2501-006	FRONT SUSPENSION	Frt Suspension 9 Leaf 20000-21500#
2601-001	STEERING COLUMN/WHEEL	Steering Column/Wheel Tilt/Telescopic 18"
2603-001	POWER STEERING PUMP	Power Steering Pump TRW
2609-002	ELECTRONIC POWER STEERING FLUID LEVEL INDICATOR	Elec Power Steering Fluid Level Indicator
2606-009	FRONT AXLE CRAMP ANGLE	Front Axle Cramp Angle 48L/44R Degrees
2610-003	POWER STEERING GEAR	Power Steering Gear TRW TAS 65 w/Assist
2608-001	CHASSIS ALIGNMENT	Chassis Alignment
3401-003	REAR AXLE	Rear Axle 27000# Meritor RS-25-160
3403-001	REAR AXLE DIFFERENTIAL LUBRICATION	Rear Axle Differential Lubrication Oil
8061-004	REAR AXLE WARRANTY	Rear Axle Warranty Meritor 2011
3411-001	REAR WHEEL BEARING LUBRICATION	Rear Wheel Bearing Lubrication Oil
3408-004	VEHICLE TOP SPEED	Vehicle Top Speed 65 MPH
3501-032	REAR SUSPENSION	Rear Susp Reyco 79KB Spring 21000-31500# Conventional
3601-014	FRONT TIRE	Frt Tire 385/65R 22.5 Michelin XZY3
3602-012	REAR TIRE	Rear Tire 12R 22.5 Michelin XDN2
3413-538	REAR AXLE RATIO	Rear Axle Ratio 5.38
3614-013	TIRE PRESSURE INDICATOR	Tire Pressure Ind Frt & Rr Pop Up Voucher
3701-016	FRONT WHEEL	Frt Wheel Accuride 22.5 x 12.25 Alum
3703-004	REAR WHEEL	Rr Whl Accuride 22.5 x 8.25 Alum
3702-002	WHEEL TRIM	Wheel Trim Hub & Nut Covers SS Shiploose
3205-012	BRAKE SYSTEM	Brake System ABS/ATC/ESC Sgl Axle
3206-001	FRONT BRAKES	Frt Brakes S-Cam Drum 16.5" x 6"
3207-010	REAR BRAKES	Rr Brakes S-Cam Drum 16.5" x 7" Cast Iron Shoe
3208-001	PARK BRAKE	Prk Brake Rr Wheels Only
3204-001	PARK BRAKE CONTROL	Prk Brake Ctrl LH Dash Mnt
3213-001	FRONT BRAKE SLACK ADJUSTERS	Frt Brake Slack Adjusters Meritor
3214-001	REAR BRAKE SLACK ADJUSTERS	Rr Brake Slack Adjusters Meritor
3202-001	AIR DRYER	Air Dryer Wabco System Saver 1200 Bhd RH Step
3215-001	FRONT BRAKE CHAMBERS	Frt Brake Chambers MGM Type 30
3210-015	REAR BRAKE CHAMBERS	Rr Brake Chambers TSE 30/36 Long Stroke
3320-001	AIR COMPRESSOR	Air Compressor Wabco SS318 18.7 CFM

3339-001	AIR GOVERNOR	Air Governor Mnt on Air Cleaner Bracket
3303-006	MOISTURE EJECTORS	Moisture Ejectors Manual/Auto Wet Tank
3307-001	AIR SUPPLY LINES	Air Sply Lines Nylon
3308-002	AIR HORN SHUTOFF VALVE	Air Horn Shutoff Valve
3309-033	AIR INLET CONNECTION	Air Inlet Connection
3349-002	AIR INLET LOCATION	Air Inlet Location LH Lwr Frt Step Fwd
3327-002	PLUMBING AIR INLET CONNECTION	Plumbing Air Inlet Conn
3326-002	AIR INLET/OUTLET FITTING TYPE	Air Inlet/Outlet Manual Conn Tru-Flate Interchange 1/4"
3334-002	AIR TANK SPACERS	Air Tank Spacers Inboard 1.5"
3338-001	REAR AIR TANK MOUNTING	Rear Air Tank Mnt Any Bhd Rear Axle Parallel w/Frame
2103-2040	WHEELBASE	Wheelbase 204.0"
2106-0470	REAR OVERHANG	Rear Overhang 47.0"
2101-002	FRAME	Frame Double Channel 35.00" Width
8007-005	FRAME WARRANTY	Frame Warranty Lifetime 2011
2117-004	FRAME CLEAR AREA	Frame Clear Area Inside/Outside Rail 30" Rwd Back of Cab
2110-004	FRAME PAINT	Frame Paint Gloss Black
2201-001	FRONT BUMPER	Frt Bumper Stainless Steel Flat
2202-006	FRONT BUMPER EXTENSION LENGTH	Frt Bumper Extension Length 24"
2226-001	FRONT BUMPER EXTENSION FRAME WIDTH	Frt Bumper Extension Frame Width 34.25"
2221-002	FRONT BUMPER WINCH	Frt Bumper Winch Ramsey 12,000 lbs
5501-012	AIR HORN	Air Horn (2) 24" Round Hadley E-Tone
2216-004	AIR HORN LOCATION	Air Horn Location (2) Frt Bmpr Face LH
2232-002	AIR HORN RESERVOIR	Air Horn Reservoir (1) 1200 Cu In
5504-029	ELECTRONIC SIREN SPEAKER	Elect Siren Speaker (1) 100W Cast Products SA4301
2217-005	ELECTRONIC SIREN SPEAKER LOCATION	Elec Siren Speaker Location Frt Bmpr Face RH OB
2204-006	FRONT BUMPER TOW EYES	Frt Bumper Tow Eyes 2" Chrome Through
2301-001	CAB TILT SYSTEM	Cab Tilt System
2305-001	CAB TILT CONTROL RECEPTACLE	Cab Tilt Ctrl Receptacle Temp
1401-009	CAB WINDSHIELD	Cab Windshield
1402-002	GLASS FRONT DOOR	Glass Frt Dr Pwr
1407-001	GLASS TINT FRONT DOOR	Glass Tint Frt Dr Automotive Green
1419-008	GLASS REAR DOOR RIGHT HAND	Glass Rr Dr RH Pwr
1430-001	GLASS TINT REAR DOOR RIGHT HAND	Glass Tint Rr Door RH Automotive Green
1412-008	GLASS REAR DOOR LEFT HAND	Glass Rr Dr LH Pwr
1431-001	GLASS TINT REAR DOOR LEFT HAND	Glass Tint Rr Door LH Automotive Green
1410-003	GLASS SIDE MID RIGHT HAND	Glass Side Mid RH Fxd 16"W x 26"H
1432-001	GLASS TINT SIDE MID RIGHT HAND	Glass Tint Side Mid RH Automotive Green
1409-003	GLASS SIDE MID LEFT HAND	Glass Side Mid LH Fxd 16"W x 26"H
1433-001	GLASS TINT SIDE MID LEFT HAND	Glass Tint Side Mid LH Automotive Green
1614-022	CLIMATE CONTROL	Climate Ctrl Htr Defroster Ovrhd Htr A/C Tunnel Mnt
1617-001	CLIMATE CONTROL ACTIVATION	Climate Ctrl Actv Device Mnt
1603-003	A/C CONDENSER LOCATION	A/C Condenser Location Roof Mnt Fwd Ctr
1601-002	A/C COMPRESSOR	A/C Compressor Small Capacity

1322-002	CAB INSULATION	Cab Insulation
1530-001	UNDER CAB INSULATION	Under Cab Insulation Engine Tunnel
1327-001	INTERIOR TRIM FLOOR	Interior Trim Floor
1302-001	INTERIOR TRIM	Interior Trim Vinyl
1368-002	REAR WALL INTERIOR TRIM	Rear Wall Interior Trim Vinyl
1306-001	HEADER TRIM	Header Trim ABS
1337-002	INTERIOR TRIM SUNVISOR	Interior Trim Sunvisor Tinted
1305-001	TRIM CENTER DASH	Trim Center Dash ABS
1339-001	TRIM LEFT HAND DASH	Trim LH Dash ABS
1321-001	TRIM RIGHT HAND DASH	Trim RH Dash ABS Glove Cmpt/MDT Prov
1307-002	ENGINE TUNNEL TRIM	Eng Tnl Trim Flr Mat
5040-007	POWER POINT DASH MOUNT	Pwr Pnt Dash Mnt Mstr Sw (2)
5042-010	AUXILIARY POWER POINT ENGINE TUNNEL	Aux Pwr Pnt Eng Tnl Batt Dir (2) Rr R/L
1303-017	STEP TRIM	Step Trim Grip Strut Lwr Flex-Tred Mid
1102-013	INTERIOR DOOR TRIM	Interior Door Trim Painted
1323-001	DOOR TRIM CUSTOMER NAMEPLATE	Door Trim Customer Nameplate
1105-001	CAB DOOR TRIM REFLECTIVE	Cab Dr Trim Reflective 1" Vert/6" Chevron w/Logo
1308-001	INTERIOR GRAB HANDLE "A" PILLAR	Interior Grab Handle 'A' Pillar 11" Molded
1332-008	INTERIOR GRAB HANDLE FRONT DOOR	Interior Grab Handle Frt Door Horiz 9"
1345-002	INTERIOR GRAB HANDLE REAR DOOR	Int Grab Handle Rr Dr Alum Window Span 30" Black Powder Coat
1301-003	INTERIOR TRIM VINYL COLOR	Interior Trim Vinyl Color Gray
1318-003	INTERIOR ABS TRIM COLOR	Interior ABS Trim Color Gray
1304-001	INTERIOR FLOOR MAT COLOR	Interior Floor Mat Color Gray
1335-003	CAB PAINT INTERIOR DOOR TRIM	Cab Paint Int Dr Trim Zolatone Onyx Black
1344-002	DASH PANEL GROUP	Dash Pnl Group 3-Pnl
1312-006	SWITCHES CENTER PANEL	Switches Ctr Pnl 18 (12+6) LH
1313-004	SWITCHES LEFT PANEL	Switches Left Pnl 8 (6+2)
1314-005	SWITCHES RIGHT PANEL	Switches Right Pnl 8 (4+4) RH
1225-012	SEAT BELT WARNING	Seat Belt Warn Indv Seat Loc & LED Display w/VDR
8101-002	OCCUPANCY ROLLOVER PROTECTION	Occupancy Rollover Protection RollTek
1237-001	SEAT MATERIAL	Seat Material Ballistic
1243-001	SEAT COLOR	Seat Color Gray/Red Seat Belts
1201-003	SEAT DRIVER	Seat Driver Seats Inc 4-Way Air Non-ABTS
1213-015	SEAT BACK DRIVER	Seat Back Driver Non-SCBA Non-ABTS
1219-001	SEAT MOUNTING DRIVER	Seat Mounting Driver
8102-003	OCCUPANCY ROLLOVER PROTECTION DRIVER	Occupancy Rollover Protection Driver Air Susp RollTek
1202-008	SEAT OFFICER	Seat Officer Seats Inc Fixed ABTS
1214-026	SEAT BACK OFFICER	Seat Back Officer SCBA Zico Rol-Loc
1220-002	SEAT MOUNTING OFFICER	Seat Mounting Officer
8103-002	OCCUPANCY ROLLOVER PROTECTION OFFICER	Occupancy Rollover Protection Officer Mech/Elec Susp RollTek
1263-001	SEAT REAR FACING OUTER LOCATION	Seat RFO Location (2) R/L

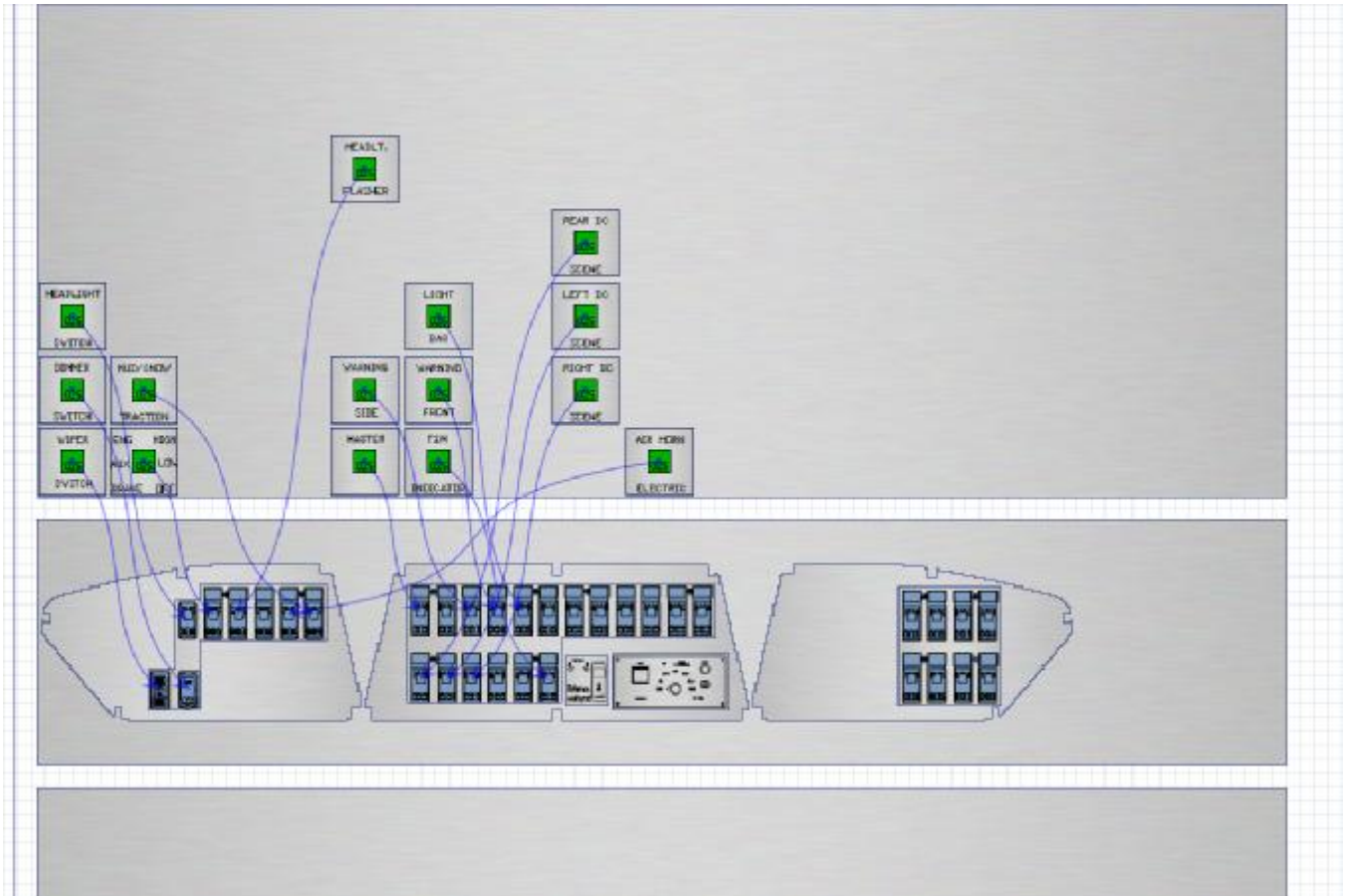
1203-008	SEAT CREW REAR FACING OUTER	Seat Crew RFO Seats Inc Fixed
1215-023	SEAT BACK REAR FACING OUTER	Seat Back RFO SCBA Zico Rol-Loc
1221-009	SEAT MOUNTING REAR FACING OUTER	Seat Mounting RFO Rwd 2"
8104-002	OCCUPANCY ROLLOVER PROTECTION RFO	Occupancy Rollover Protection RFO RollTek
1273-001	SEAT BELT ORIENTATION CREW	Seat Belt Orientation Crew Outboard Shoulder To Inboard Hip
1266-001	SEAT FORWARD FACING CENTER LOCATION	Seat FFC Location (2) Ctr
1206-011	SEAT CREW FORWARD FACING CENTER	Seat Crew FFC Seats Inc Flip-up
1218-026	SEAT BACK FORWARD FACING CENTER	Seat Back FFC SCBA Zico Rol-Loc
1224-002	SEAT MOUNTING FORWARD FACING CENTER	Seat Mounting Forward Facing Center
8107-002	OCCUPANCY ROLLOVER PROTECTION FFC	Occupancy Rollover Protection FFC RollTek
1269-101	SEAT FRAME FORWARD FACING	Seat Frm Fwd Fcg Dual
1281-101	SEAT FRAME FORWARD FACING STORAGE ACCESS	Seat Frm Fwd Fcg Strg Acc Dr (2) R/L Sd
1311-110	CAB FRONT UNDERSEAT STORAGE ACCESS DOOR	Cab Frt Undrst Strg Acc Panel
1355-009	SEAT COMPARTMENT DOOR FINISH	Seat Compartment Door Finish Zolatone Onyx Black
1511-001	WINDSHIELD WIPER SYSTEM	Windshield Wiper System Dual Motors
1534-002	ELECTRONIC WINDSHIELD FLUID LEVEL INDICATOR	Electronic Windshield Fluid Level Indicator
1103-004	CAB DOOR HARDWARE	Cab Door Hardware Chrome w/Scuff Plate
1111-001	DOOR LOCKS	Door Locks Manual
1115-002	DOOR LOCK LH REAR CAB COMPARTMENT	Door Lock LH Rear Cab Compartment Manual
1116-002	DOOR LOCK RH REAR CAB COMPARTMENT	Door Lock RH Rear Cab Compartment Manual
1503-002	GRAB HANDLES	Grab Handles SS 18"
1504-015	REARVIEW MIRRORS	Mirror Aerodynamic Retractable 613285 Rmt Htd Ltd
1529-004	REARVIEW MIRROR HEAT SWITCH	Rearview Mirror Heat Sw Mirror Ctrl Pnl
1513-002	CAB FENDER	Cab Fender Alum
1514-002	MUD FLAPS FRONT	Mud Flaps Frt
1526-004	CAB EXTERIOR FRONT & SIDE EMBLEMS	Cab Ext Frt & Side Emblems
1502-019	CAB EXTERIOR MODEL NAMEPLATE	Cab Exterior Model Nameplate Metro Star
5109-001	IGNITION	Ign Mstr Sw w/Keyless Start
5101-002	BATTERY	Batt (6) Group 31 Harris
5106-003	BATTERY TRAY	Batt Tray (2) R/L Steel
5102-001	BATTERY CABLE	Batt Cables
5108-002	BATTERY JUMPER STUD	Batt Jumper Stud Frt LH Lwr Step
5104-002	ALTERNATOR	Alternator Leece-Neville 320A
5202-004	BATTERY CONDITIONER	Batt Cond Kussmaul 1200
5203-002	BATTERY CONDITIONER DISPLAY	Batt Cond Display LH Mid Glass
5204-055	ELECTRICAL INLET	Elec Inlet 120V 20A Auto Eject
5209-002	ELECTRICAL INLET LOCATION	Elec Inlet Location LH Cab Side Mid

5210-004	ELECTRICAL INLET CONNECTION	Elec Inlet Conn to Batt Conditioner
5206-002	ELECTRICAL INLET COLOR	Elec Inlet Color Yellow
5301-050	HEADLIGHTS	Headlights/DRL
5303-004	FRONT TURN SIGNALS	Frt Turn Signals Whelen 600 LED
5337-001	HEADLIGHT LOCATION	Headlights Below Frt Warn Lts
5336-003	SIDE TURN/MARKER LIGHTS	Side Turn/Marker Lts LED
5302-003	MARKER & ICC LIGHTS	Marker & ICC Lts Face Mnt LED
5350-001	HEADLIGHT AND MARKER LIGHT ACTIVATION	Hdlt & Mrkr Lt Actv Rkr Sw
5308-003	GROUND LIGHTS	Ground Lts Resp Dr & Prk Brk Sw
5309-002	STEP LIGHTS	Step Lts
5312-001	ENGINE COMPARTMENT LIGHT	Engine Compartment Work Lt (1)
5306-002	SIDE SCENE LIGHTS	Side Scene Lts Whelen 810 Series 12V QH Clear 32 Deg
5318-006	SIDE SCENE LIGHT LOCATION	Side Scene Lt Loc Upper Mid Fwd 10" Roof Position
5316-003	SIDE SCENE ACTIVATION	Side Scene Actv Indv Sw
5330-006	REAR SCENE LIGHTS	Rear Scene Lts Whelen 810 12V QH Clear 32 Degree (2)
5332-003	REAR SCENE LIGHT LOCATION	Rr Scene Lt Loc (2) Outer Rr Wall
5331-002	REAR SCENE LIGHT ACTIVATION	Rear Scene Lt Actv Sgl Sw
5305-001	INTERIOR OVERHEAD LIGHTS	Interior Overhead Lights
5310-002	MAP LIGHTS	Map Lt Roxter RH Dash
5315-002	SPOTLIGHT	Spotlight Handheld Optronics KB4003
5406-001	DO NOT MOVE APPARATUS LIGHT	Do Not Move App Lt Flashing Red w/Alarm
5422-001	MASTER WARNING SWITCH	Mstr Warn Sw Pnl
5409-002	HEADLIGHT FLASHER	Headlight Flasher Alternating
5425-002	HEADLIGHT FLASHER SWITCH	Headlight Flasher Sw Pnl
5401-002	INBOARD FRONT WARNING LIGHTS	Inboard Frt Warn Lts Whelen 600 Series Super LED Chrm Bezel
5413-003	INBOARD FRONT WARNING LIGHTS COLOR	Inboard Frt Warn Lts Color Red w/Clr Lens
5423-007	FRONT WARNING SWITCH	Frt Warn Sw Pnl
5404-002	INTERSECTION WARNING LIGHTS	Intersection Warn Lts Whelen 600 Series Super LED
5419-003	INTERSECTION WARNING LIGHTS COLOR	Int Warn Lts Color Red w/Clr Lens
5420-002	INTERSECTION WARNING LIGHTS LOCATION	Intersection Warn Lts Location Bumper Tail
5402-006	SIDE WARNING LIGHTS	Side Warn Lts Whelen 700 Super LED
5418-003	SIDE WARNING LIGHTS COLOR	Side Warn Lts Color Red w/Clr Lens
5412-002	SIDE WARNING LIGHTS LOCATION	Side Warn Lts Location Lwr Mid
5424-008	SIDE AND INTERSECTION WARNING SWITCH	Side & Intersection Warn Sw Pnl
5403-013	LIGHTBAR PROVISION	Lightbar Prov Wire & Mnt Spartan Supply
5450-004	CAB FRONT LIGHTBAR	Cab Frt Lightbar Whelen Freedom FN72QLED Layout 2
5426-002	LIGHTBAR SWITCH	Lightbar Sw Pnl
5407-003	INTERIOR DOOR OPEN WARNING LIGHTS	Int Dr Open Warn Lts Red Truck-Lite 4" LED Flsh
5510-004	SIREN CONTROL HEAD	Siren Ctrl Head Whelen 295HFS2
5514-002	HORN BUTTON SELECTOR SWITCH	Horn Btn Sel Sw Elec Horn/Air Horn

5512-003	AIR HORN ACTIVATION	Air Horn Actv Strg Whl/RH Ft Sw
5505-002	BACK-UP ALARM	Back-Up Alarm Ecco 575
5601-001	INSTRUMENTATION	Instrumentation Standard
5706-041	CAMERA	Cam Rr Box & RH Teardrop w/Mon
5703-010	COMMUNICATION ANTENNA	Comm Ant Base RH Fwd Cab Rf Spartan Sply
5708-010	COMMUNICATION ANTENNA CABLE ROUTING	Comm Ant Cable Routing Behind LH Frt Seat
5020-001	PANEL LAYOUT	Panel Layout
8814-002	CAB EXTERIOR PROTECTION	Cab Exterior Protection Front
8806-001	FIRE EXTINGUISHER	Fire Extinguisher Ship Loose
8807-002	ROAD SAFETY KIT	Road Safety Kit Ship Loose
8810-001	DOOR KEYS	Door Keys for Manual Locks (4)
8811-002	DIAGNOSTIC SOFTWARE ROLLTEK	Diagnostic Software RollTek w/Interface Module
8003-022	WARRANTY	Warranty Cab and Chassis 2011 (1) Year
8030-001	OPERATION MANUAL	Operation Manual Hard Copy
8031-002	ENGINE & TRANSMISSION OPERATION MANUAL	Engine & Transmission Operation Manual Hard Copy (2)
8032-009	ENGINE SERVICE MANUAL	Engine Service Manual Hard Copy Cummins ISC/ISL (2)
8033-010	TRANSMISSION SERVICE MANUAL	Transmission Service Manual Hard Copy Allison 3000 EVS (2)
8805-002	AS BUILT WIRING DIAGRAMS	As Built Wiring Diagrams Hard Copy
8034-002	CUSTOMER INSPECTION	Customer Inspection
2124-002	EFCM/REAR CROSSMEMBERS	End of Frame Cross Member

Panel Visual Layout





5020-001 Panel Layout



1312A-005 SWITCH PANEL CENTER 18 (12+6) SWITCHES LH 94"

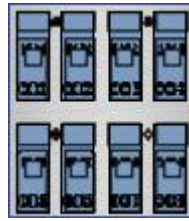


Port Info









Port	Label	Connected From
	2933-NN2-001 (MASTER)	<u>5422-001/5020PRT-025</u>
	1312A-005/5020PRT-002	---
	2933-NN2-026 (WARNING SIDE)	<u>5424A-001/5020PRT-025</u>
	2933-NN2-024 (WARNING FRONT)	<u>5423A-001/5020PRT-025</u>
	2933-NN2-059 (LIGHT BAR)	<u>5426-002/5020PRT-025</u>
	1312A-005/5020PRT-006	---
	1312A-005/5020PRT-007	---
	1312A-005/5020PRT-008	---
	1312A-005/5020PRT-009	---
	1312A-005/5020PRT-010	---
	1312A-005/5020PRT-011	---
	1312A-005/5020PRT-012	---

013	2933-NN2-148 (REAR DC SCENE)	<u>5331-002/5020PRT-025</u>
014	2933-NN2-146 (LEFT DC SCENE)	<u>5316-003/5020PRT-025</u>
015	2933-NN2-147 (RIGHT DC SCENE)	<u>5316A-001/5020PRT-025</u>
016	1312A-005/5020PRT-016	---
017	1312A-005/5020PRT-017	---
018	2933-NN2-086 (LOAD MNGR)	<u>5004-003/5020PRT-025</u>

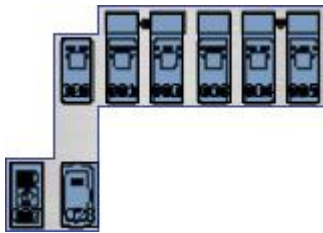
1314-005 Switches Right Pnl 8 (4+4) RH



Port Info

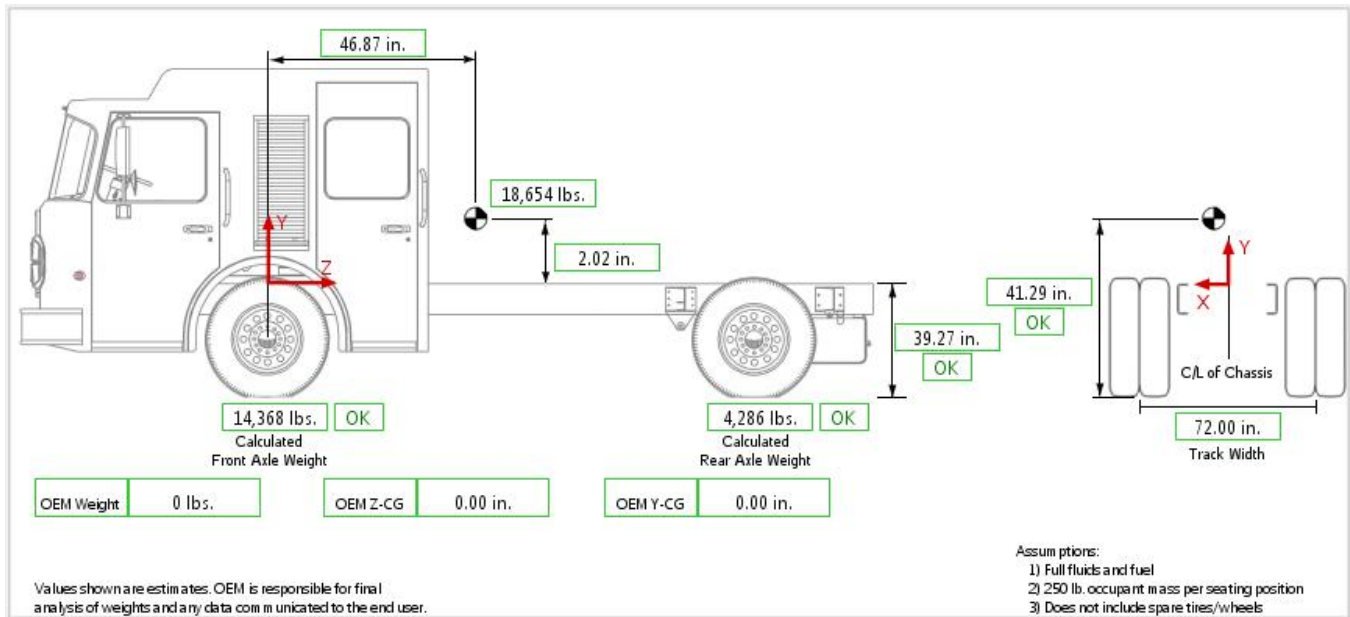
Port	Label	Connected From
	1314-005/5020PRT-001	---
	1314-005/5020PRT-002	---
	1314-005/5020PRT-003	---
	1314-005/5020PRT-004	---
	1314-005/5020PRT-005	---
	1314-005/5020PRT-006	---
	1314-005/5020PRT-007	---
	1314-005/5020PRT-008	---

1313-004 Switches Left Pnl 8 (6+2)



Port Info		
Port	Label	Connected From
001	2933-NN2-245 (ENG AUX BRK HIGH / LOW / OFF)	<u>1708-005/5020PRT-025</u>
002	2933-NN2-020 (HEADLT. FLASHER)	<u>5425-002/5020PRT-025</u>
003	1313-004/5020PRT-003	---
004	2933-NN2-031 (AIR HORN / ELECTRIC)	<u>5514-002/5020PRT-025</u>
005	2933-NN2-141 (MUD/SNOW TRACTION)	<u>3205-012/5020PRT-025</u>
029	HEADLIGHTS	<u>5350A-001/5020PRT-025</u>
027	WIPER	<u>1511-001/5020PRT-025</u>
028	DIMMER	<u>5350B-001/5020PRT-025</u>

Weight Distribution



Calculated Apparatus Weight 18,654 lbs.
Calculated Apparatus Z-CG 46.87 in.
Calculated Apparatus Y-CG 2.02 in.

Note:

The Y-CG value above is calculated from the top of the frame.
Apparatus refers to total combined value for cab and chassis and OEM inputs.

Specification

MODEL

The chassis shall be a Metro Star model. The cab and chassis shall include design considerations for multiple emergency vehicle applications, rapid transit and maneuverability. The chassis shall be manufactured for heavy duty service with the strength and capacity to support a fully laden apparatus, one hundred (100) percent of the time.

MODEL YEAR

The chassis shall have a vehicle identification number that reflects a 2011 model year.

COUNTRY OF SERVICE

The chassis shall be put in service in the country of United States of America (USA).

The chassis will meet applicable U.S.A. federal motor vehicle safety standards per CFR Title 49 Chapter V Part 571 as clarified in the incomplete vehicle book per CFR Title 49 Chapter V Part 568 Section 4 which accompanies each chassis. Spartan Chassis is not responsible for compliance to state, regional, or local regulations. Dealers should identify those regulations and order any necessary optional equipment from Spartan Chassis or their OEM needed to be in compliance with those regulations.

APPARATUS TYPE

The apparatus shall be a pumper vehicle designed for emergency service use which shall be equipped with a permanently mounted fire pump which has a minimum rated capacity of 750 gallons per minute (3000 L/min). The apparatus shall include a water tank and hose body whose primary purpose is to combat structural and associated fires.

VEHICLE TYPE

The chassis shall be manufactured for use as a straight truck type vehicle and designed for the installation of a permanently mounted apparatus behind the cab. The apparatus of the vehicle shall be supplied and installed by the apparatus manufacturer.

AXLE CONFIGURATION

The chassis shall feature a 4 X 2 axle configuration consisting of a single rear drive axle with a single front steer axle.

GROSS AXLE WEIGHT RATINGS FRONT

The front gross axle weight rating (GAWR) of the chassis shall be 20,000 pounds.

This front gross axle weight rating shall be adequate to carry the weight of the completed apparatus including all equipment and personnel.

GROSS AXLE WEIGHT RATINGS REAR

The rear gross axle weight rating (GAWR) of the chassis shall be 27,000 pounds.

This rear gross axle weight rating shall be adequate to carry the weight of the completed apparatus including all equipment and personnel.

PUMP PROVISION

The chassis shall include provisions to mount a drive line pump in the middle of the chassis, behind the cab, more commonly known as the midship location.

CAB STYLE

The cab shall be a custom, fully enclosed, ELFD model with a 10.00 inch raised roof over the driver, officer, and crew area, designed and built specifically for use as an emergency response vehicle by a company specializing in cab and chassis design for all emergency response applications. The cab shall be designed for heavy-duty service utilizing superior strength and capacity for the application of protecting the occupants of the vehicle. This style of cab shall offer up to ten (10) seating positions.

The cab shall incorporate a fully enclosed design with side wall roof supports, allowing for a spacious cab area with no partition between the front and rear sections of the cab. To provide a superior finish by reducing welds that fatigue cab metal; the roof, the rear wall and side wall panels shall be assembled using a combination of welds and proven industrial adhesives designed specifically for aluminum fabrication for construction.

The cab shall be constructed using multiple aluminum extrusions in conjunction with aluminum plate, which shall provide proven strength and the truest, flattest body surfaces ensuring less expensive paint repairs if needed. All aluminum welding shall be completed to the American Welding Society and ANSI D1.2-96 requirements for structural welding of aluminum.

All interior and exterior seams shall be sealed for optimum noise reduction and to provide the most favorable efficiency for heating and cooling retention.

The cab shall be constructed of 5052-H32 corrosion resistant aluminum plate. The cab shall incorporate tongue and groove fitted 6061-T6 0.13 & 0.19 inch thick aluminum extrusions for extreme duty situations. A single formed, one (1) piece extrusion shall be used for the "A" pillar, adding strength and rigidity to the cab as well as additional roll-over protection. The cab side walls and lower roof skin shall be 0.13 inch thick; the rear wall and raised roof skins shall be 0.09 inch thick; the front cab structure shall be 0.19 inch thick.

The exterior width of the cab shall be 94.00 inches wide with a minimum interior width of 88.00 inches. The overall cab length shall be 148.00 inches with 74.00 inches from the centerline of the front of the axle to the back of the cab.

The cab interior shall be designed to afford the maximum usable interior space and attention to ergonomics with hip and legroom while seated which exceeds industry standards. The crew cab floor shall be flat across the entire walking area for ease of movement inside the cab.

The cab shall offer an interior height of 58.00 inches from the front floor to the headliner in the non-raised roof area and a rear floor to headliner height of 65.00 inches in the raised roof area, at a minimum. The cab shall offer an interior measurement at the floor level from the rear of the engine tunnel to the rear wall of the cab of 58.50 inches. All interior measurements shall include the area within the interior trimmed surfaces and not to any unfinished surface.

The cab shall include a driver and officer area with two (2) cab doors large enough for personnel in full firefighting gear. The front doors shall offer a clear opening of 40.00 inches wide X 53.50 inches high, from the cab floor to the top of the door opening. The cab shall also include a crew area with up to two (2) cab doors, also large enough for personnel in full firefighting gear. The rear doors shall offer a clear opening of 31.00 inches wide X 61.00 inches high, from the cab floor to the top of the door opening.

The cab shall incorporate a progressive two (2) step configuration from the ground to the cab floor at each door opening. The progressive steps are vertically staggered and extend the full width of each step well allowing personnel in full firefighting gear to enter and exit the cab easily and safely.

The first step for the driver and officer area shall measure approximately 10.88 inches deep X 31.50 inches wide. The intermediate step shall measure approximately 8.63 inches deep X 33.00 inches wide. The height from the first step to the intermediate step and the intermediate step to the cab floor shall not exceed 11.00 inches.

The first step for the crew area shall measure approximately 10.88 inches deep X 21.50 inches wide. The intermediate step shall measure approximately 11.50 inches deep X 23.50 inches wide. The height from the first step to the intermediate step and the intermediate step to the cab floor shall not exceed 12.50 inches.

CAB FRONT FASCIA

The front cab fascia shall be constructed of 5052-H32 Marine Grade, 0.090 of an inch thick, one hundred percent primary aluminum plate which shall be an integral part of the cab.

The cab fascia will encompass the entire front of the aluminum cab structure from the bottom of the windshield to the bottom of the cab and shall be the "Classic" design.

The front cab fascia shall include two (2) molded plastic modules on each side accommodating a total of up to four (4) Hi/Low beam headlights and two (2) turn signal lights or up to four (4) warning lights. Two (2) chrome plated molded plastic bezels shall be provided on each side around each set of two lamps.

FRONT GRILLE

The front cab fascia shall include a classic box style, polished stainless steel front grille with a Spartan logo. The grille shall measure approximately 40.00 inches wide at the top of tapering to 32.00 inches wide at the bottom X 33.00 inches high X 1.50 inches deep.

The grille shall include a minimum free air intake of 632.90 square inches shall be installed on the front of the cab.

The upper portion of the grille shall be hinged at the bottom so it can be opened to allow easy access for examination of the windshield wiper motor, linkage and other options mounted within that area. The upper portion of the grille shall be secured with two (2) flush push button latches.

CAB PAINT EXTERIOR

The cab shall be painted prior to the installation of glass accessories and all other cab trim to ensure complete paint coverage and the maximum in corrosion protection of all metal surfaces.

All metal surfaces on the entire cab shall be ground by disc to remove any surface oxidation or surface debris which may hinder the paint adhesion. Once the surface is machine ground a high quality acid etching of base primer shall be applied. Upon the application of body fillers and their preparation, the cab shall be primed with a coating designed for corrosion resistance and surface paint adhesion. The maximum thickness of the primer coat shall be 2.00 mils.

The entire cab shall then be coated with an intermediate solid or epoxy surfacing agent that is designed to fill any minor surface defects, provide an adhesive bond between the primer and the paint and improve the color and gloss retention of the color. The finish to this procedure shall be a sanding of the cab with 360 grit paper, the seams shall be sealed with SEM brand seam sealer and painted with two (2) to four (4) coats of an acrylic urethane type system designed to retain color and resist acid rain and most atmospheric chemicals found on the fire ground or emergency scene.

The cab shall then be painted with the upper and lower colors specifically designated by the customer with a minimum thickness of two 2.00 mils of paint, followed by a clear top coat not to exceed 2.00 mils.

CAB PAINT MANUFACTURER

The cab shall be painted with PPG Industries paint.

CAB PAINT PRIMARY/LOWER COLOR

The lower paint color shall be PPG FBCH 71528 Red.

CAB PAINT SECONDARY/UPPER COLOR

The secondary/upper paint color shall be PPG FBCH 2185 white.

CAB PAINT EXTERIOR BREAKLINE

The upper and lower paint shall meet at a breakline on the cab which shall be located approximately 1.00 inch below the door windows on each side of the cab. The breakline shall continue in a straight line approximately 1.00 inch below the windshields on the front of the cab.

CAB PAINT PINSTRIPE

Where the upper and lower paint colors meet a temporary 0.50 inch black pinstripe shall be applied over this break line to offer a more finished look prior to the final pinstripe being installed by the OEM.

CAB PAINT WARRANTY

The cab and chassis shall be covered by a limited manufacturer paint warranty which shall be in effect for ten (10) years from the first owner's date of purchase or in service or the first 100,000 actual miles, whichever occurs first.

CAB PAINT INTERIOR

The visible cab structure surfaces shall be painted with a Zolatone #20-71 onyx black texture finish.

CAB ENTRY DOORS

The cab shall include four (4) entry doors, two (2) front doors and two (2) crew doors designed for ease of entering and egress when outfitted with an SCBA. The doors shall be constructed of extruded aluminum with a nominal thickness of 0.13 inch. The exterior skins shall be constructed of 0.13 inch aluminum plate.

The doors shall include a double rolled style automotive rubber seal around the perimeter of each door frame and door edge which ensures a weather tight fit.

All door hinges shall be hidden within flush mounted cab doors for a pleasing smooth appearance and perfect fit along each side of the cab. Each door hinge shall be piano style with a 0.38 inch pin and shall be constructed of stainless steel.

CAB ENTRY DOOR TYPE

All cab entry doors shall be full length in design to fully enclose the lower cab steps.

LH EXTERIOR REAR COMPARTMENT

The cab shall offer an exterior compartment on the left side of the cab behind the rear door. The compartment opening shall be 16.00 inches wide X 83.34 inches high. The compartment size shall be 17.34 inches wide X 87.00 inches high X 21.19 inches deep below the floor. The compartment shall be 18.50 inches wide X 66.00 inches high and full depth above the floor. The forward facing wall of the compartment shall include the complete rear wall structure to allow seat frames to be mounted forward of the compartment. The compartment shall have a 16.63 inch wide X 84.00 inch high X 1.50 inch thick hinged box pan style flush mount door with a bright aluminum tread plate inner panel and a bent D-ring slam latch. The door shall open towards the rear of the cab. There shall be a switch to activate a light inside the compartment and the open compartment warning light in the cab in the event the door is left ajar.

LEFT HAND EXTERIOR REAR COMPARTMENT LIGHTING

There shall be one (1) SoundOff Signal brand LED strip light installed to illuminate the exterior rear compartment on the left side of the cab. The strip light shall be 43.00 inches long and shall include twelve (12) bright white Gen3 LEDs.

LH EXTERIOR COMPARTMENT INTERIOR FINISH

The interior of the left hand exterior compartment shall have a Zolatone #20-71 onyx black texture finish.

RH EXTERIOR REAR COMPARTMENT

The cab shall offer an exterior compartment on the right side of the cab behind the rear door. The compartment opening shall be 16.00 inches wide X 83.34 inches high. The compartment size shall be 17.34 inches wide X 87.00 inches high X 21.19 inches deep below the floor. The compartment shall be 18.50 inches wide X 66.00 inches high and full depth above the floor. The forward facing wall of the compartment shall include the complete rear wall structure to allow seat frames to be mounted forward of the compartment. The compartment shall have a 16.63 inch wide X 84.00 inch high X 1.50 inch thick hinged box pan style flush mount door with a bright aluminum tread plate inner panel and a bent D-ring slam latch. The door shall open towards the rear of the cab. There shall be a switch to activate a light inside the compartment and the open compartment warning light in the cab in the event the door is left ajar.

RIGHT HAND EXTERIOR REAR COMPARTMENT LIGHTING

There shall be one (1) SoundOff Signal brand LED strip light installed to illuminate the exterior rear compartment on the right side of the cab. The strip light shall be 43.00 inches long and shall include twelve (12) bright white Gen3 LEDs.

RH EXTERIOR COMPARTMENT INTERIOR FINISH

The interior of the right hand exterior compartment shall have a Zolatone #20-71 onyx black texture finish.

CAB STRUCTURAL WARRANTY

The cab structure shall be warranted for a period of ten (10) years or one hundred thousand (100,000) miles which ever may occur first. Warranty conditions may apply and shall be listed in the detailed warranty document that shall be provided upon request.

CAB TEST INFORMATION

The cab shall have successfully achieved survival of the International crash test ECE-29, Addendum 28, Revision 1 as indicated below.

As part of the ECE regulation 29 test, the frontal area of the cab is struck by a 3,700 pound pendulum weight. The weight is brought back to a sixty degree angle and then the weight is released and allowed to swing forward, imparting some 32,600 pounds foot of force to the cab front face. The cab shall be so constructed that after the test, there will be minimal intrusion of the cab structure into the passenger area. The doors shall remain usable for both entry and exit. Also, as part of the test the cab roof must withstand a static load bearing test. The cab shall withstand a weight of over 60,000 pounds without permanent damage or collapse. The above tests shall be witnessed by and attested to by an independent third party. The test results shall be recorded on/by cameras, high speed imagers, accelerometers and

strain gauges, with notarized copies of the letters verifying the test results and videos of said test shall be available upon request.

ELECTRICAL SYSTEM

The chassis shall include a single starting electrical system which shall include a 12 volt direct current system, suppressed per SAE J551. The wiring shall be appropriate gauge cross link with 311 degree Fahrenheit insulation. All SAE wires in the chassis shall be color coded and shall include the circuit number and function where possible. The wiring shall be protected by 275 degree Fahrenheit minimum high temperature flame retardant loom.

APPARATUS WIRING PROVISION

An apparatus wiring panel shall be installed on the officer side bulkhead below the dash which shall include eight (8) open circuits consisting of three (3) 20 amp, one (1) 30 amp, three (3) 10 amp, and one (1) 15 amp circuit, with relays and breakers with trigger wires which shall be routed to the rocker switch panel.

LOAD MANAGEMENT SYSTEM

The apparatus shall be equipped with a Class 1 Total System Manager (TSM) for performing electrical load management. The TSM shall have sixteen (16) programmable outputs to supply warning and load switching requirements. Outputs one (1) through twelve (12) shall be independently programmable to activate during the scene mode, the response mode, or both. These outputs can also be programmed to activate with the ignition or master warning switch, or to sequence and shed along with the priority. Output thirteen (13) shall be designated to activate a fast idle system. Output fourteen (14) shall provide a low voltage warning for an isolated battery. Output fifteen (15) is a user configurable output and shall be programmable for activating between 10.50 and 15.00 volts. Output sixteen (16) shall provide a low voltage alarm that activates at the NFPA required 11.80 volts. The TSM shall have a digital display to indicate system voltage in normal operation mode and also indicate the output configuration during programming mode. The TSM shall be protected against reverse polarity and shorted outputs and be enclosed in a metal enclosure to enhance EMI/RFI protection.

DATA RECORDING SYSTEM

The chassis shall have a Class One Vehicle Data Recorder system installed. The system shall be designed to meet NFPA 1901. The following information shall be recorded:

- Vehicle Speed
 - Acceleration
 - Deceleration
 - Engine Speed
 - Engine Throttle Position
 - ABS Event
 - Seat Occupied Status
 - Seat Belt Status
 - Master Optical Warning Device Switch Position
 - Time
 - Date
-

Each portion of the data shall be recorded at the specified intervals and stored for the specified length of time to meet NFPA 1901 guidelines and shall be retrievable by connecting a laptop computer to the VDR system.

POWER & GROUND STUD

A 40 amp battery direct power and ground stud shall be provided and installed in the electrical distribution panel. The stud shall be size #10 and protected with a 40 amp circuit breaker.

AUXILIARY POWER & GROUND STUD

An auxiliary set of power and ground studs shall be provided and installed behind the electrical center cover with a 40 amp breaker. The studs shall be 0.38 inch diameter and capable of carrying up to a 40 amp load switched with the master power switch.

ADDITIONAL POWER & GROUND STUD

An additional set of power and ground studs shall be provided and installed behind the electrical center cover with a 40 amp breaker. The studs shall be .375 inch diameter and capable of carrying up to a 40 amp load switched with the master power switch.

EXTERIOR ELECTRICAL TERMINAL COATING

All terminals exposed to the elements will be sprayed with a yellow protective rubberized coating to prevent corrosion.

ENGINE

A 2007 FEDERAL EPA EMISSION COMPLIANT ENGINE HAS BEEN SELECTED. THIS ENGINE IS SUBJECT TO AVAILABILITY ON HAND AT TIME OF PURCHASE AT SPARTAN CHASSIS. TIME OF PURCHASE SIGNIFIES ACCEPTANCE, BY SPARTAN CHASSIS, OF A VALID PURCHASE ORDER WITH A FULLY COMPLETED ORDER FILE AND THE RETURN, BY SPARTAN CHASSIS, OF A WRITTEN CONFIRMATION TO PURCHASER WHICH INCLUDES AN ASSIGNED SALES ORDER NUMBER. THIS CONFIRMATION MUST EXPRESSLY STATE THAT THE ENGINE SELECTION IS CONFIRMED AND WILL BE INCLUDED IN YOUR ORDER. BASED ON UPCOMING 2010 FEDERAL EPA EMISSION CHANGES, 2007 FEDERAL EPA EMISSION COMPLIANT ENGINES ARE IN LIMITED SUPPLY AND INVENTORIES COULD BE DEPLETED AT ANY MOMENT. IF AT TIME OF PURCHASE AT SPARTAN CHASSIS THE SELECTED ENGINE IS NO LONGER AVAILABLE, SPARTAN CHASSIS CANNOT BE HELD RESPONSIBLE NOR PARTICIPATE IN ANY ADDITIONAL CHARGES TO MODIFY THE ORDER TO PROVIDE A VIABLE AND AVAILABLE ENGINE OFFERING. THESE CHARGES COULD INCLUDE BUT ARE NOT LIMITED TO CHANGING ENGINE BRAND, HORSEPOWER OR UPGRADING TO A 2010 FEDERAL EPA EMISSION COMPLIANT ENGINE. ADDITIONAL ORDER CONTENT COULD BE AFFECTED IF THE SELECTED 2007 FEDERAL EPA COMPLIANT ENGINE IS REQUIRED TO CHANGE AS A RESULT OF AVAILABILITY. SPARTAN CHASSIS CANNOT BE HELD RESPONSIBLE NOR PARTICIPATE IN ADDITIONAL CHARGES WHICH MAY OCCUR IF ASSOCIATED ORDER OPTION CONTENT CHANGES ARE REQUIRED IN THE EVENT THAT AN ALTERNATIVE

ENGINE SELECTION IS REQUIRED. THESE CHARGES COULD INCLUDE BUT ARE NOT LIMITED TO CHANGING TRANSMISSION MODEL OR CAB MODEL. AN APPROVED QUOTE IN SPARCON IS IN NO WAY A VERIFICATION OF ENGINE AVAILABILITY. ALL ORDERS REQUESTING A 2007 FEDERAL EPA EMISSION COMPLIANT ENGINE MUST COMPLY WITH ALL STANDARD PURCHASING AND REQUESTED DELIVERY DATES GUIDELINES POSTED IN SPARCON FOR THE ASSOCIATED DATABOOK FOR THE ORDER OR IT WILL BE REJECTED. ANY SALES ORDER WITH A CONFIRMED 2007 FEDERAL EPA EMISSION COMPLIANT ENGINE THAT IS CANCELED WILL BE SUBJECTED TO A CANCELLATION FEE OF TEN THOUSAND DOLLARS (\$10,000) OR MORE BASED ON WHERE THE ORDER IS IN THE PROCUREMENT OR BUILD PROCESS. ANY SALES ORDER WITH A CONFIRMED 2007 FEDERAL EPA EMISSION COMPLIANT ENGINE THAT CANNOT BE DELIVERED ON OR PRIOR TO THE REQUESTED DELIVERY DATE WHICH MUST COMPLY WITH THE GUIDELINES POSTED IN SPARCON FOR THE ASSOCIATED DATABOOK DUE TO UNRESOLVED CLARIFICATIONS OR CONTENT CHANGES WILL BE CANCELED BY SPARTAN CHASSIS AND SUBJECTED TO A MINIMUM CANCELLATION FEE OF TEN THOUSAND DOLLARS (\$10,000) OR MORE BASED ON WHERE THE ORDER IS IN THE COMPONENT PROCUREMENT OR PRODUCTION PROCESS. ANY OTHER WRITTEN OR VERBAL AGREEMENTS OR REPRESENTATIONS MADE REGARDING 2007 EPA EMISSION COMPLIANT ENGINES ARE SUPERSEDED BY THE PREVIOUS GOVERNING STATEMENTS REGARDING THE SALE AND AVAILABILITY OF 2007 FEDERAL EPA EMISSION COMPLIANT ENGINES BY SPARTAN CHASSIS.

The power plant for the vehicle shall offer a high pressure performance, turbo charged engine which shall feature a high pressure common rail fuel system. This system shall be coupled with a proven Holset turbo which delivers outstanding performance at ratings up to 425 HP. The Cummins ISL engine shall include replaceable mid-stop cylinder liners plus heavy duty roller followers, targeted piston cooling and 30% more efficient oil cooling for improved durability and reliability. The heavy duty design shall also feature stronger braking capacity.

The engine shall be EPA certified to meet the 2007 emissions standards without compromising performance, reliability or durability. The Cummins ISL 425 engine shall feature an air charge cooled engine which consists of an in line six (6) cylinder, four cycle diesel powered engine. The engine shall offer a rating of 425 horse power at 2100 RPM and shall be governed at 2200 RPM. The torque rating shall feature 1200 foot pounds of torque at 1300 RPM with 543 cubic inches of displacement. The Cummins ISL 425 engine shall feature an electronic governor.

A wiring harness shall be supplied ending at the back of the cab. The harness shall include a connector which shall allow an optional harness for the pump panel. The included circuits shall be provided for a tachometer, oil pressure, engine temperature, hand throttle, high idle and a PSG system. A circuit for J1939 data link shall also be provided at the back of the cab.

The engine shall include an engine mounted combination full flow/by-pass oil filter with replaceable spin on cartridge for use with the engine lubrication system. The engine shall include Citgo brand Citgard 500, or equivalent SAE 15W40 CJ4 low ash engine oil which shall be utilized for proper engine lubrication.

CAB ENGINE TUNNEL

The cab interior shall include an integrated engine tunnel constructed of 5052-H32 Marine Grade, 0.19 of an inch thick aluminum. The tunnel shall be a maximum of 41.50 inches wide X 23.00 inches high.

DIESEL PARTICULATE FILTER CONTROLS

There shall be two (2) controls for the diesel particulate filter. One (1) control shall be for regeneration and one (1) control shall be for regeneration inhibit.

ENGINE PROGRAMMING HIGH IDLE SPEED

The engine high idle control shall maintain the engine idle at approximately 1250 RPM when engaged.

ENGINE HIGH IDLE CONTROL

The vehicle shall be equipped with an automatic high-idle speed control which shall be pre-set to operate when the engine is at a specified RPM to increase alternator output. This device shall operate only when the master switch is activated and the transmission is in neutral with the parking brake set. The device shall disengage when the operator depresses the brake pedal, or the transmission is placed in gear, and shall automatically re-engage when the brake is released, or when the transmission is placed in neutral.

ENGINE PROGRAMMING ROAD SPEED GOVERNOR

The engine shall include programming which will govern the top speed of the vehicle.

AUXILIARY ENGINE BRAKE

A Jacobs engine compression brake, for the six (6) cylinder engine shall be provided. The engine compression brake shall actuate the vehicle's brake lights when engaged. A cutout relay shall be installed to disable the compression brake when in pump mode or when an ABS event occurs. The engine brake shall activate upon 0% accelerator when in operation mode.

AUXILIARY ENGINE BRAKE CONTROL

An engine compression brake control device shall be included. The electronic control device shall monitor various conditions and shall activate the engine brake only if all of the following conditions are simultaneously detected:

- A valid gear ratio is detected.
- The driver has requested or enabled engine compression brake operation.
- The throttle is at a minimum engine speed position.
- The electronic controller is not presently attempting to execute an electronically controlled final drive gear shift.
- There is no active ABS event.

The compression brake shall be controlled through an off/low/high rocker switch on the dash.

FLUID FILLS

The front of the chassis shall accommodate fluid fills for the engine oil, and the power steering fluid through the grille. This area shall also accommodate checks for the engine oil, and power steering fluid.

ELECTRONIC ENGINE OIL LEVEL INDICATOR

The engine oil shall be monitored electronically and shall send a signal to activate a warning in the instrument panel when levels fall below normal. The warning shall activate in a low oil situation upon turning on the master battery and ignition switches without the engine running.

ENGINE WARRANTY

The Cummins engine shall be warranted for a period of five (5) years or 100,000 miles, whichever occurs first.

REMOTE THROTTLE HARNESS

An apparatus interface wiring harness for the engine shall be supplied with the chassis. The harness shall include a connector for connection to the chassis harness which shall terminate in the left frame rail behind the cab for reconnection by the apparatus builder. The harness shall contain connectors for a Fire Research In Control 300/400 pressure governor and a multiplexed gauge. Separate circuits shall be included for pump controls, "Pump Engaged" and "OK to Pump" indicator lights, open compartment ground, start signal, park brake ground, ignition signal, master power, customer ignition, air horn solenoid switch, high idle switch and high idle indication light. The harness shall be designed for a side mount pump panel.

An apparatus interface wiring harness shall also be included which shall be wired to the cab harness interface connectors and shall incorporate circuits with relays to control pump functions. This harness shall control the inputs for the transmission lock up circuits, governor/hand throttle controls and dash display which shall incorporate "Pump Engaged" and "OK to Pump" indicator lights. The harness shall contain circuits for the apparatus builder to wire in a pump switch.

ENGINE PROGRAMMING REMOTE THROTTLE

The engine ECM (Electronic Control Module) discreet wire remote throttle circuit shall be turned off for use with a J1939 based pump controller or when the discreet wire remote throttle controls are not required.

ENGINE PROGRAMMING IDLE SPEED

The engine low idle speed will be programmed at 700 rpm.

ENGINE FAN DRIVE

The engine cooling system fan shall incorporate a thermostatically controlled, Horton clutched type fan drive.

When the clutched fan is disengaged it shall facilitate improved vehicle performance, cab heating in cold climates, and fuel economy. The fan clutch design shall be fail safe so that if the clutch drive fails the fan shall engage to prevent engine overheating due to the fan clutch failure.

ENGINE COOLING SYSTEM

There shall be a heavy-duty aluminum cooling system designed to meet the demands of the fire industry. The cooling system shall have the capacity to keep the engine properly cooled under all conditions of road and pumping operations. The cooling system shall be designed and tested to meet or exceed the requirements specified by the engine and transmission manufacturer and all EPA requirements. The complete cooling system shall utilize heavy-duty welds and be mounted to isolate the entire system from vibration or stress. The individual cores of the cooling system shall be mounted in a manner to allow expansion and contraction at various rates without inducing stress into the adjoining cores.

The cooling system shall be comprised of a stacked, single depth package that provides the maximum cooling capacity for the specified engine as well as offers excellent serviceability. The main components shall include a surge tank, a charge air cooler, a recirculation shield, and a radiator.

Proposals unable to offer a stacked single depth cooling package shall not be considered.

There shall be a single depth core that allows greater efficiency, enhanced serviceability, and lighter weight with a higher ambient capability.

The cooling package core shall not protrude below the frame of the vehicle by more than 1.1 inch. This feature shall improve the angle of approach thereby reducing possible damage.

The radiator shall be a cross-flow design constructed completely of aluminum with welded side tanks. The radiator shall include a minimum of a 627 square inch core and shall be bolted to the bottom of the charge air cooler to allow a single depth core, thus allowing a more efficient and serviceable cooling system. The radiator shall be equipped with a drain cock to drain the coolant for serviceability.

The cooling system shall include a one piece injected molded Polymer fan blade designed to provide long life in harsh environments. Polymer fans provide a significant weight reduction over metal fans providing longer life for fan clutch linings and bearings along with increased fan belt life.

The cooling system shall be equipped with a surge tank that is capable of removing entrained air from the system. The surge tank shall be equipped with a low coolant probe and sight glass to monitor the level of the coolant. The surge tank shall have a cap that meets the engine manufactures pressure requirements as well as the system design requirements.

All radiator tubes shall be formed from aluminized steel tubing. Recirculation shields shall be installed where required to prevent heated air from reentering the cooling package and affecting performance. When a center bumper compartment is installed an additional shield may be required to redirect the airflow into the coolers.

The charge air cooler shall be a cross-flow design constructed completely of aluminum with welded side tanks. The charge air cooler shall have a minimum of a 390 square inch core and be bolted to the top of the radiator to allow a single depth core, thus allowing a more efficient and serviceable cooling system.

All charge air cooler tubes shall be formed from aluminized steel tubing and installed with silicone hump hoses and stainless steel "constant torque" style clamps meeting the engine manufactures requirements.

ENGINE COOLANT

The cooling package shall include Extended Life Coolant (ELC). The use of ELC provides longer intervals between coolant changes over standard coolants providing improved performance. The coolant shall contain a 50/50 mix of ethylene glycol and de-ionized water to keep the coolant from freezing to a temperature of -34 degrees F.

Proposals offering supplemental coolant additives (SCA) shall not be considered, as this is part of the extended life coolant makeup.

ELECTRONIC COOLANT LEVEL INDICATOR

The instrument panel shall feature a low engine coolant indicator light which shall be located in the center of the instrument panel. An audible tone alarm shall also be provided to warn of a low coolant incident.

ENGINE PUMP HEAT EXCHANGER

A single bundle type coolant to water heat exchanger shall be installed between the engine and the radiator. The heat exchanger shall be designed to prohibit water from the pump from coming in contact with the engine coolant. This shall allow the use of water from the discharge side of the pump to assist in cooling the engine.

COOLANT HOSES

The cooling systems hose shall be formed silicone hose and formed aluminized steel tubing and include stainless steel constant torque band clamps.

ENGINE AIR INTAKE

The engine air intake system shall include an ember separator air intake filter which shall be located in the front of the cab behind the right hand side fascia. This filter shall protect the downstream air filter from embers using a combination of unique flat and crimped metal screens constructed into a corrosion resistant steel frame. This multilayered screen shall be designed to trap embers or allow them to burn out before passing through the pack, while creating only minimal air flow restriction through the system. Periodic cleaning or replacement of the screen shall be all that is required after installation.

The engine shall also include an air intake filter which shall be bolted to the frame and located under the front of the cab on the right hand side. The dry type filter shall ensure dust and debris safely contained inside the disposable housing, eliminating the chance of contaminating the air intake system during air filter service via a leak-tight seal.

The air flow distribution and dust loading shall be uniform throughout the high-performance filter cone pack, which shall result in pressure differential for improved horsepower and fuel economy. The air intake shall be mounted within easy access via a hinged panel behind the right hand side headlight module. The air intake system shall include a restriction indicator light in the warning light cluster on the instrument panel, which shall activate when the air cleaner element requires replacement.

ENGINE EXHAUST SYSTEM

The exhaust system shall include a diesel particulate filter and a diesel oxidation catalyst to meet current EPA standards.

The system shall utilize 0.065 inch thick stainless steel exhaust tubing between the engine turbo and the diesel particulate filter. This section of the exhaust system shall be wrapped with a thermal cover in order to retain the necessary heat for system regeneration. Zero leak clamps seal all system joints between the turbo and diesel particulate filter.

From the diesel particulate filter to the end of the tailpipe the system shall be plumbed with 0.065 inch thick aluminized steel tubing connected with overlapping band style clamps. The discharge shall terminate horizontally on the officer side of the vehicle ahead of the rear tires.

The exhaust system shall be mounted below the frame in the outboard position providing maximum space for frame mounted components such as midship pumps.

ENGINE EXHAUST ACCESSORIES

An exhaust temperature mitigation device shall be shipped loose for installation by the body manufacturer on the vehicle. The temperature mitigation device shall lower the temperature of the exhaust by combining ambient air with the exhaust gasses at the exhaust outlet.

TRANSMISSION

The drive train shall include an Allison Gen IV-E model EVS 3000 torque converting, automatic transmission which shall include electronic controls. The transmission shall feature two (2) 10-bolt PTO pads located on the converter housing.

The transmission shall include two (2) internal oil filters and Castrol TranSynd™ synthetic TES 295 transmission fluid which shall be utilized in the lubrication of the EVS transmission. An electronic oil level sensor shall be included with the readout located in the shift selector.

The Gen IV-E transmission shall include prognostic diagnostic capabilities. These capabilities shall include the monitoring of the fluid life, filter change indication, and transmission clutch maintenance.

The transmission gear ratios shall be:

1st	3.49:1
2nd	1.86:1
3rd	1.41:1
4th	1.00:1
5th	0.75:1
6th	0.65:1 (if applicable)
Rev	5.03:1

TRANSMISSION MODE PROGRAMMING

The transmission, upon start-up, will automatically select a four (4) speed operation. The fifth speed over drive shall be available with the activation of the mode button on the shifting pad.

TRANSMISSION FEATURE PROGRAMMING

The EVS group package number 127 shall contain the 198 vocational package in consideration of the duty of this apparatus as a Pumper. This package shall incorporate an automatic neutral with selector override. This feature commands the transmission to neutral when the park brake is applied, regardless of drive range requested on the shift selector. This requires re-selecting drive range to shift out of neutral for the override.

This package shall be coupled with the use of a split shaft PTO and incorporate pumping circuits. These circuits shall be used allowing the vehicle to operate in the fourth range lockup while operating the pump mode due to the 1 to 1 ratio through the transmission, therefore the output speed of the engine is the input speed to the pump. The pump output can be easily calculated by using this input speed and the drive ratio of the pump itself to rate the gallons of water the pump can provide.

An eight (8) pin Delphi connector will be provided next to the steering column connector. This will contain the following input/output circuits to the transmission control module.

Function ID	Description	Wire assignment
C	PTO Request	142
J	Fire Truck Pump Mode (4th Lockup)	122 / 123
C	Range Indicator	145 (4th)
G	PTO Enable Output	130
	Signal Return	103

ELECTRONIC TRANSMISSION OIL LEVEL INDICATOR

The transmission fluid shall be monitored electronically and shall send a signal to activate a warning in the instrument panel when levels fall below normal.

TRANSMISSION SHIFT SELECTOR

An Allison pressure sensitive range selector touch pad shall be provided and located to the right of the driver within clear view and easy reach. The shift selector shall provide a prognostic indicator (wrench symbol) on the digital display between the selected and attained indicators. The prognostics monitor various operating parameters to determine and shall alert you when a specific maintenance function is required.

TRANSMISSION PRE-SELECT WITH AUXILIARY BRAKE

When the auxiliary brake is engaged, the transmission shall automatically shift to second gear to decrease the rate of speed assisting the secondary braking system and slowing the vehicle.

TRANSMISSION COOLING SYSTEM

The transmission shall include an air to oil cooler integrated into the lower portion of cooling package. The transmission cooling system shall meet all transmission manufacturer requirements. The cooling system shall feature a circuit provision located within the hydraulic transmission oil which shall provide for rapid warm up to the optimum transmission operating temperature.

TRANSMISSION WARRANTY

The Allison EVS series transmission shall be warranted for a period of five (5) years with unlimited mileage. Parts and labor shall be included in the warranty.

DRIVELINE

All drivelines shall be heavy duty metal tube and equipped with Spicer 1710 series universal joints. The shafts shall be dynamically balanced prior to installation to alleviate future vibration. In areas of the driveline where a slip shaft is required, the splined slip joint shall be coated with Glide Coat®.

MIDSHIP PUMP / GEARBOX

A temporary jackshaft driveline shall be installed by the chassis manufacturer to accommodate the mid-ship split shaft pump as specified by the apparatus manufacturer.

MIDSHIP PUMP / GEARBOX MODEL

The midship pump/gearbox provisions shall be for a Waterous CSUC20 pump.

MIDSHIP PUMP RATIO

The ratio for the midship pump shall be 2.27:1.

MIDSHIP PUMP GEARBOX DROP

The Waterous pump gearbox shall have a “C” (medium length) drop length.

MIDSHIP PUMP LOCATION C/L SUCTION

The pump driveline shall include a centerline of the rear axle to the center line of the suction dimension of 100.00 inches.

FUEL FILTER/WATER SEPARATOR

The fuel system shall have a Fleetguard FS1003 fuel filter/water separator as a primary filter. The fuel filter shall have a drain valve.

A water in fuel sensor shall be provided and wired to an instrument panel lamp and audible alarm to indicate when water is present in the fuel/water separator.

A secondary fuel filter shall be included as approved by the engine manufacturer.

FUEL LINES

The fuel system supply and return lines installed from the fuel tank to the engine shall be reinforced nylon tubing rated for diesel fuel. The fuel lines shall be brown in color and connected with brass fittings.

FUEL SHUTOFF VALVE

A fuel shutoff valve shall be installed in the fuel draw line at the primary fuel filter to allow the fuel filter to be changed without loss of fuel to the fuel pump.

A second fuel shutoff valve shall be installed in the fuel draw line, near the fuel tank to allow maintenance to be performed with minimal loss of fuel.

FUEL TANK

The fuel tank shall have a capacity of sixty-five (65) gallons and shall measure 35.00 inches in width X 18.50 inches in height X 24.00 inches in length. The baffled tank shall be made of 14 gauge aluminized steel. The exterior of the tank shall be painted with a PRP Corsol™ black anti-corrosive exterior metal treatment finish. This results in a tank which offers the internal and external corrosion resistance.

The tank shall have a vent port to facilitate venting to the top of the fill neck for rapid filling without "blow-back" and a roll over ball check vent for temperature related fuel expansion and draw.

The tank is designed with dual draw tubes and sender flanges. The tank shall have 2.00 inch NPT fill ports for right or left hand fill. A 0.50 inch NPT drain plug shall be centered in the bottom of the tank.

The fuel tank shall be mounted below the frame, behind the rear axle. Two (2) three-piece strap hanger assemblies with "U" straps bolted midway on the fuel tank front and rear shall be utilized to allow the tank to be easily lowered and removed for service purposes. Rubber isolating pads shall be provided between the tank and the hanger strap assemblies. Strap mounting studs through the rail, hidden behind the body shall not be acceptable.

FUEL TANK FILL PORT

The fuel tank fill ports shall be offset with the right fill port located in the middle position and the left fill port located in the rearward position on the fuel tank.

FRONT AXLE

The front axle shall be a Meritor Easy Steer Non drive front axle, model number MFS-20. The axle shall include a 3.74 inch drop and a 71.00 inch king pin intersection (KPI). The axle shall include a conventional style hub with a standard knuckle.

FRONT AXLE WARRANTY

The front axle shall be warranted by Meritor for two (2) years with unlimited miles under the general service application. Details of the Meritor warranty are provided on the PDF document attached to this option.

FRONT WHEEL BEARING LUBRICATION

The front axle wheel bearings shall be lubricated with oil. The oil level can be visually checked via clear inspection windows in the front axle hubs.

FRONT SHOCK ABSORBERS

Two (2) Bilstein inert, nitrogen gas filled shock absorbers shall be provided and installed as part of the front suspension system. The shocks shall be a monotubular design and fabricated using a special extrusion method, utilizing a single blank of steel without a welded seam, achieving an extremely tight peak-to-valley tolerance and maintains consistent wall thickness. The monotubular design shall provide superior strength while maximizing heat dissipation and shock life.

The ride afforded through the use of a gas shock is more consistent and shall not deteriorate with heat, the same way a conventional oil filled hydraulic shock would.

The Bilstein front shocks shall include a digressive working piston assembly allowing independent tuning of the compression and rebound damping forces to provide optimum ride and comfort without compromise. The working piston design shall feature fewer parts than most conventional twin tube and “road sensing” shock designs and shall contribute to the durability and long life of the Bilstein shock absorbers.

Proposals offering the use of conventional twin tube or “road sensing” designed shocks shall not be considered.

FRONT SUSPENSION

The front suspension shall include a nine (9) leaf spring pack in which the longest leaf measures 54.00 inch long and 4.00 inches wide and shall include a military double wrapped front eye. Both spring eyes shall have a case hardened threaded bushing installed with lubrication counter bore and lubrication land off cross bore with grease fitting. The spring capacity shall be rated at 21,500 pounds.

STEERING COLUMN/ WHEEL

The cab shall include a Douglas Autotech steering column shall be a seven (7) position tilt and 2.25 inch telescopic type with an 18.00 inch steering wheel located on the left side of the cab designating the driver’s position. The steering wheel shall be covered with black absorbite padding.

The steering column shall contain a horn button, self-canceling turn signal switch, four-way hazard switch and headlamp dimmer switch.

POWER STEERING PUMP

The hydraulic power steering pump shall be a TRW PS and shall be gear driven from the engine. The pump shall be a balanced, positive displacement, sliding vane type.

ELECTRONIC POWER STEERING FLUID LEVEL INDICATOR

The power steering fluid shall be monitored electronically and shall send a signal to activate an audible alarm and visual warning in the instrument panel when fluid level falls below normal.

FRONT AXLE CRAMP ANGLE

The chassis shall have a front axle cramp angle of 48 degrees to the left and 44 degrees to the right.

POWER STEERING GEAR

The power steering gear shall be a TRW model TAS 65 with an assist cylinder.

CHASSIS ALIGNMENT

The chassis frame rails shall be measured to insure the length is correct and cross checked to make sure they run parallel and are square to each other. The front and rear axles shall be laser aligned. The front tires and wheels shall be aligned and toe-in set on the front tires by the chassis manufacturer.

REAR AXLE

The rear axle shall be a Meritor model RS-25-160 single drive axle. The axle shall include precision forged, single reduction differential gearing, and shall have a fire service rated capacity of 27,000 pounds.

The axle shall be built of superior construction and quality components to provide the rugged dependability needed to stand up to the fire industry's demands. The axle shall include rectangular shaped, hot-formed housing with a standard wall thickness of 0.63 of an inch for extra strength and rigidity and a rigid differential case for high axle strength and reduced maintenance.

The axle shall have heavy-duty Hypoid gearing for longer life, greater strength and quieter operation. Industry-standard wheel ends for compatibility with both disc and drum brakes, and unitized oil seal technology to keep lubricant in and help prevent contaminant damage will be used.

REAR AXLE DIFFERENTIAL LUBRICATION

The rear axle differential shall be lubricated with oil.

REAR AXLE WARRANTY

The rear axle shall be warranted by Meritor for two (2) years with unlimited miles under the general service application. Details of the Meritor warranty are provided on the PDF document attached to this option.

REAR WHEEL BEARING LUBRICATION

The rear axle wheel bearings shall be lubricated with oil.

VEHICLE TOP SPEED

The top speed of the vehicle shall be approximately 65 MPH +/-2 MPH at governed engine RPM.

REAR SUSPENSION

The single rear axle shall feature a Reyco 79KB vari-rate, self-leveling captive slipper type conventional multi-leaf spring suspension, with 57.50 inch X 3.00 inch springs. One (1) adjustable and one (1) fixed torque rod shall be provided.

The rear suspension capacity shall be rated from 21,000 to 31,500 pounds.

FRONT TIRE

The front tires shall be Michelin 385/65R-22.5 18PR "J" tubeless radial XZY3 mixed service tread.

The front tire stamped load capacity shall be 18,740 pounds per axle with a speed rating of 65 miles per hour when properly inflated to 120 pounds per square inch.

The front tire US Fire Service Intermittent Usage load capacity shall be 20,000 pounds per axle with a speed rating of 65 miles per hour when properly inflated to 120 pounds per square inch.

REAR TIRE

The rear tires shall be Michelin 12R-22.5 16PR "H" tubeless radial XDN2 all weather tread.

The rear tire stamped load capacity shall be 27,120 pounds per axle with a speed capacity of 75 miles per hour when properly inflated to 120 pounds per square inch.

The rear tire US Fire Service Intermittent Usage load capacity shall be 28,880 pounds per axle with a speed capacity of 75 miles per hour when properly inflated to 120 pounds per square inch.

REAR AXLE RATIO

The rear axle ratio shall be 5.38:1.

TIRE PRESSURE INDICATOR

There shall be a voucher provided with the chassis for a pop up style tire pressure indicator at each tire valve stem. The indicator shall provide visual indication of pressure in the specific tire.

The tire pressure indicators shall be redeemed upon the vehicle manufacturer's receipt of the voucher for installation by the customer.

FRONT WHEEL

The front wheels shall be Accuride hub piloted, 22.50 inch X 12.25 inch polished aluminum wheels. The hub piloted mounting system shall provide easy installation and shall include two-piece flange nuts. The wheels shall be forged from a single piece of aluminum, designed to be corrosion resistant and are engineered for a long life.

REAR WHEEL

The rear wheels shall be Accuride hub piloted, heavy duty, 22.50 inch x 8.25 inch aluminum wheels. Each outer wheel shall have a polished aluminum finish on the exterior surface and each inner wheel shall have a machine finish. The wheels shall be forged from a single piece of aluminum which shall be corrosion resistant, engineered to be lightweight and provide exceptional performance. The hub piloted mounting system shall provide easy installation and shall include two-piece flange nuts.

WHEEL TRIM

The front wheels shall include stainless steel lug nut covers and stainless steel baby moons shipped loose with the chassis for installation by the apparatus builder. The baby moons shall have cutouts for oil seal viewing when applicable.

The rear wheels shall include stainless steel lug nut covers and band mounted spring clip stainless steel high hats shipped loose with the chassis for installation by the apparatus builder.

The lug nut covers, baby moons, and high hats shall be RealWheels® brand constructed of 304L grade, non-corrosive stainless steel with a mirror finish. Each wheel trim component shall meet D.O.T. certification.

BRAKE SYSTEM

A rapid build-up air brake system shall be provided. The air brakes shall include a two (2) air tank, three (3) reservoir system with a total of 4152 cubic inch of air capacity. A floor mounted treadle valve shall be mounted inside the cab for graduated control of applying and releasing the brakes. An inversion valve shall be installed to provide a service brake application in the unlikely event of primary air supply loss. All air reservoirs provided on the chassis shall be labeled for identification.

The rear axle spring brakes shall automatically apply in any situation when the air pressure falls below 25 PSI and shall include a mechanical means for releasing the spring brakes when necessary. An audible alarm shall designate when the system air pressure is below 60 PSI.

A four (4) sensor, four (4) modulator anti-lock braking system (ABS) shall be installed on the front and rear axles in order to prevent the brakes from locking or skidding while braking during hard stops or on icy or wet surfaces. This in turn shall allow the driver to maintain steering control under heavy braking and in most instances, shorten the braking distance. The electronic monitoring system shall incorporate diagonal circuitry which shall monitor wheel speed during braking through a sensor and tone ring on each wheel. A dash mounted ABS lamp shall be provided to notify the driver of a system malfunction. The ABS system shall automatically disengage the auxiliary braking system device when required. The speedometer screen shall be capable of reporting all active defaults using PID/SID and FMI standards.

Additional safety shall be accommodated through Automatic Traction Control (ATC) which shall be installed on the tandem rear axle. The ATC system shall apply the ABS when the drive wheels loose traction. The system shall scale the electronic engine throttle back to prevent wheel spin while accelerating on ice or wet surfaces.

Additional handling capabilities shall include Roll Stability Control (RSC) which shall monitor the vehicles rollover threshold based on the lateral acceleration. The system shall activate a computerized device which shall slow the vehicle when the threshold is exceeded in either direction. Normal vehicle operation shall resume once the problematic conditions cease. The RSC system shall be integral with the ABS and ATC systems.

A momentary rocker style switch shall be provided and properly labeled “mud/snow”. When the switch is pressed once, the system shall allow a momentary wheel slip to obtain traction under extreme mud and snow conditions. During this condition the ATC light and the light on the rocker switch shall blink continuously notifying the driver of activation. Pressing the switch again shall deactivate the mud/snow feature.

The Electronic Stability Control (ESC) unit is a functional extension of the electronic braking system. It is able to detect any skidding of the vehicle about its vertical axis as well as any rollover tendency. The control unit comprises an angular-speed sensor that measures the vehicle's motion about the vertical axis, caused, for instance, by cornering or by skidding on a slippery road surface. An acceleration sensor measures the vehicle's lateral acceleration. The Controller Area Network (CAN) bus provides information on the steering angle. On the basis of lateral acceleration and steering angle, an integrated microcontroller calculates a theoretical angular speed for the stable vehicle condition.

FRONT BRAKES

The front brakes shall be Meritor 16.5" x 6" S-cam drum type.

REAR BRAKES

The rear brakes shall be Meritor 16.50 inch X 7.00 inch S-cam drum type. The brakes shall include a cast iron shoe.

PARK BRAKE

Upon application of the push-pull valve in the cab, the rear brakes will engage via mechanical spring force. This is accomplished by dual chamber rear brakes, satisfying the FMVSS parking brake requirements.

PARK BRAKE CONTROL

A Meritor-Wabco manual hand control push-pull style valve shall operate the parking brake system. The control shall be yellow in color.

The parking brake actuation valve shall be mounted on the left hand dash to the right of the steering column within easy reach of the driver.

FRONT BRAKE SLACK ADJUSTERS

The front brakes shall include Meritor automatic slack adjusters shall be installed on the chassis which features a simple, durable design offering reduced weight. The automatic slack adjusters shall feature a manual adjusting nut which cannot inadvertently be backed off and threaded grease fittings for easy serviceability.

REAR BRAKE SLACK ADJUSTERS

The rear brakes shall include Meritor automatic slack adjusters installed on the axle which features a simple, durable design offering reduced weight. The automatic slack adjusters shall feature a manual adjusting nut which cannot inadvertently be backed off and threaded grease fittings for easy serviceability.

AIR DRYER

The brake system shall include a Wabco System Saver 1200 air dryer with an integral 100 watt heater with a Metri-Pack sealed connector. The air dryer incorporates an internal turbo cutoff valve that closes the path between the air compressor and air dryer purge valve during the compressor "unload" cycle. The

turbo cutoff valve allows purging of moisture and contaminants without the loss of turbo boost pressure. The air dryer shall be located on the right hand frame rail forward of the front wheel behind the right hand cab step.

FRONT BRAKE CHAMBERS

The front brakes shall be provided with MGM type 30 brake chambers.

REAR BRAKE CHAMBERS

The rear axle shall include TSE 30/36 brake chambers which shall convert the energy of compressed air into mechanical force and motion. This shall actuate the brake camshaft, which in turn shall operate the foundational brake mechanism forcing the brake shoes against the brake drum. The TSE Type 36 brake chamber has a 36.00 square inch effective area.

AIR COMPRESSOR

The air compressor provided for the engine shall be a Wabco® SS318 single cylinder pass-through drive type compressor which shall be capable of producing 18.7 CFM at 1200 engine RPMs. The air compressor shall feature a higher delivery efficiency translating to more air delivery per horsepower absorbed. The compressor shall include an aluminum cylinder head which shall improve cooling, reduce weight and decrease carbon formation. Superior piston and bore finishing technology shall reduce oil consumption and significantly increasing the system component life.

AIR GOVERNOR

An air governor shall be provided to control the cut-in and cut-out pressures of the engine mounted air compressor. The governor shall be calibrated to meet FMVSS requirements. The air governor shall be located on the air cleaner bracket on the right frame rail behind the officer step.

MOISTURE EJECTORS

An automatic moisture ejector with a manual drain provision shall be installed on the wet tank of the air supply system. Manual pet-cock type drain valves shall be installed on all remaining reservoirs of the air supply system.

AIR SUPPLY LINES

A dual air system plumbed with color coded reinforced nylon tubing air lines shall be installed on the chassis. The primary (rear) brake line shall be green, the secondary (front) brake line red, the parking brake line orange and the auxiliary (outlet) will be blue.

Brass compression type fittings shall be used on the nylon tubing. All drop hoses shall include fiber reinforced neoprene covered hoses.

AIR HORN SHUTOFF VALVE

A shut-off valve located in the driver's dash shall be installed in the air horn supply line.

AIR INLET CONNECTION

An air connection for the shoreline air inlet shall be supplied.

AIR INLET LOCATION

The air inlet shall be installed in the left hand side lower front step in the forward position.

PLUMBING AIR INLET CONNECTION

The air inlet connector shall be plumbed to the air system with a check valve to prevent air from escaping through the inlet connector.

AIR INLET/ OUTLET FITTING TYPE

The air connector supplied shall be a 0.25 inch size Tru-Flate Interchange style manual connection which is compatible with Milton 'T' style, Myers 0.25 inch Automotive style and Parker 0.25 inch 10 Series connectors.

AIR TANK SPACERS

There shall be spacers included with the air tank mounting. The spacers shall move the air tanks 1.50 inches inward towards the center of the chassis. This shall provide clearance between the air tanks and the frame for body U-bolt clearance.

REAR AIR TANK MOUNTING

If a combination of wheel base, air tank quantity, or other requirements necessitate the location of one or more air tanks to be mounted rear of the fuel tank, these tank(s) will be mounted parallel to frame.

WHEELBASE

The chassis wheelbase shall be 204.00 inches.

REAR OVERHANG

The chassis rear overhang shall be 47.00 inches.

FRAME

The frame shall consist of double rails running parallel to each other with cross members forming a ladder style frame. The frame rails shall be formed in the shape of a "C" channel, with the outer rail measuring 10.25 inches high X 3.50 inches deep upper and lower flanges X 0.38 inches thick with an inner channel of 9.44 inches high X 3.13 inches deep and 0.38 inches thick. Each rail shall be constructed of 110,000 psi minimum yield high strength low alloy steel. Each double rail section shall be rated by a Resistance Bending Moment (RBM) minimum of 3,213,100 inch pounds and have a minimum section modulus of 29.21 cubic inches. The frame shall measure 35.00 inches in width.

Proposals calculating the frame strength using the "box method" shall not be considered.

Proposals including heat treated rails shall not be considered. Heat treating frame rails produces rails that are not uniform in their mechanical properties throughout the length of the rail. Rails made of high strength, low alloy steel are already at the required yield strength prior to forming the rail.

A minimum of seven (7) fully gusseted 0.25 inch thick cross members shall be installed. The inclusion of the body mounting, or bumper mounting shall not be considered as a cross member. The cross members shall be attached using zinc coated grade 8 fasteners. The head bolts shall be flanged type with distorted threads, held in place by flanged lock nuts. Each cross member shall be mounted to the frame rails utilizing a minimum of 0.25 inch thick gusset reinforcement plates at all corners balancing the area of force throughout the entire frame.

Any proposals not including additional reinforcement for each cross member shall not be considered.

All relief areas shall be cut in with a minimum 2.00 inch radius at intersection points with the edges ground to a smooth finish to prevent a stress concentration point.

The frame and cross members shall carry a lifetime warranty to the original purchaser. A copy of the frame warranty shall be made available upon request.

Proposals offering warranties for frames not including cross members shall not be considered.

FRAME WARRANTY

The frame and cross members shall carry a limited lifetime warranty to the original purchaser. The warranty shall include conditional items listed in the detailed warranty document which shall be provided upon request.

FRAME CLEAR AREA

The chassis frame shall be left clear of chassis mounted components inside or outside the frame rails within the first 30.00 inches behind the cab to allow space for OEM installed components. Cross members may be installed in the clear area if required for proper frame or driveline configuration.

FRAME PAINT

The frame shall be powder coated black prior to any attachment of components.

All powder coatings, primers and paint shall be compatible with all metals, pretreatments and primers used. The cross hatch adhesion test per ASTM D3359 shall not have a fail of more than ten (10) squares. The pencil hardness test per ASTM D3363 shall have a final post-cured pencil hardness of H-2H. The direct impact resistance test per ASTM D2794 shall have an impact resistance of 120.00 inches per pound at 2 mils. The salt spray resistance per ASTM B-117-97 shall pass 500 hours of salt spray test. The applied process shall allow the application of other products over it and still maintain or exceed the 500 hours salt spray test.

Any proposals offering painted frame with variations from the above process shall not be accepted. The film thickness of vendor supplied parts shall also be sufficient to meet the performance standards as stated above.

The chassis under carriage consisting of frame, axles, driveline running gear, air tanks and other chassis mounted components shall be painted with gloss black paint. Paint shall be applied prior to airline and electrical wiring installation.

FRONT BUMPER

A one piece, two (2) rib wrap-around style, polished stainless steel front bumper shall be provided. The material shall be 10 gauge 304 stainless steel, 12.00 inches high and 99.00 inches wide.

FRONT BUMPER EXTENSION LENGTH

The front bumper shall be extended approximately 24.00 inches ahead of the cab.

FRONT BUMPER EXTENSION FRAME WIDTH

The front bumper extension frame shall feature an overall width of 34.25 inches.

FRONT BUMPER WINCH

The front bumper shall include a Ramsey model RE12000 electric winch with 12,000 pound rated line pull, 12 volt electric winch shall be installed in the center of the front bumper. The winch shall be equipped with 125.00 feet of 0.38 inch cable, clevis hook and a 4 way roller fairlead. The winch shall be operated through a 25.00 foot pendant with a hand held control. The winch shall include a spring applied hydraulic released disc brake and counterbalance valve. It shall feature an easy to use spring loaded clutch with clutch engagement indicator light.

AIR HORN

The chassis shall include two (2) Hadley brand E-Tone air horns which shall measure 24.00 inches long with a 6.00 inch round flare. The air horns shall be trumpet style with a chrome finish on the exterior and a painted finish deep inside the trumpet.

AIR HORN LOCATION

The air horns shall be recess mounted in the front bumper face on the left side of the bumper in the inboard and outboard positions relative to the left hand frame rail.

AIR HORN RESERVOIR

One (1) air tank, with a 1200 cubic inch reservoir, shall be installed on the chassis to act as a supply tank for operating air horns. The reservoir shall be isolated with a 90 PSI pressure protection valve on the reservoir supply side to prevent depletion of the air to the air brake system.

ELECTRONIC SIREN SPEAKER

The bumper shall include one (1) Cast Products Inc. model SA4301, 100 watt speaker which shall be recess mounted within the bumper fascia. The speaker shall include a flat mounting flange and be chrome in color.

ELECTRONIC SIREN SPEAKER LOCATION

The electronic siren speaker shall be located on the front bumper face on the right side outboard of the frame rail in the far outboard position.

FRONT BUMPER TOW EYES

The bumper shall include two (2) chrome plated tow eyes shall be installed through the front bumper. The eyes shall be fabricated from 0.75 inch thick #1020 ASTM-A36 hot rolled steel. The inside diameter of the eye shall be 2.00 inches and include a chamfered edge.

CAB TILT SYSTEM

The entire cab shall be capable of tilting approximately 45-degrees to allow for easy maintenance of the engine and transmission.

The electric-over-hydraulic lift system shall include an ignition interlock and red cab lock down indicator lamp on the tilt control which shall illuminate when holding the "Down" button to indicate safe road operation.

It shall be necessary to activate the master battery switch and set the parking brake in order to tilt the cab. As a third precaution the ignition switch must be turned off to complete the cab tilt interlock safety circuit.

Two (2) spring-loaded hydraulic hold down hooks located outboard of the frame shall be installed to hold the cab securely to the frame. Once the hold-down hooks are set in place, it shall take the application of pressure from the hydraulic cab tilt lift pump to release the hooks.

Two (2) cab tilt cylinders shall be provided with velocity fuses in each cylinder port. The cab tilt pivots shall be 1.90 inch ball and be anchored to frame brackets with 1.25 inch diameter studs.

A steel safety channel assembly shall be installed on the right side cab lift cylinder to prevent accidental cab lowering. The safety channel assembly shall fall over the lift cylinder when the cab is in the fully tilted position. A cable release system shall also be provided to retract the safety channel assembly from the lift cylinder to allow the lowering of the cab.

CAB TILT CONTROL RECEPTACLE

The cab tilt control cable shall include a receptacle which shall be temporarily located on the right hand chassis rail rear of the cab to provide a place to plug in the cab tilt remote control pendant. The tilt pump shall include 8.00 feet of cable with a six (6) pin Deutsch receptacle with a cap.

The remote control pendant shall include 20.00 feet of cable with a mating Deutsch connector. The remote control pendant shall be shipped loose with the chassis.

CAB WINDSHIELD

The cab windshield shall have a surface area of 2825.00 square inches and be of a two (2) piece wraparound design for maximum visibility.

The glass utilized for the windshield shall include standard automotive tint. The left and right windshield shall be fully interchangeable thereby minimizing stocking and replacement costs.

Each windshield shall be installed using black self locking window rubber.

GLASS FRONT DOOR

The front cab doors shall include a window which is 27.00 inches in width X 26.00 inches in height. These windows shall have the capability to roll down completely into the door housing. This shall be accomplished using electric actuation. The power window shall be controlled with a switch on the driver's door.

There shall be an irregular shaped fixed window which shall measure 2.50 inches wide at the top, 8.00 inches wide at the bottom X 26.00 inches in height, more commonly known as "cozy glass" ahead of the front door roll down windows.

The windows shall be mounted within the frame of the front doors trimmed with a black anodized ring on the exterior.

GLASS TINT FRONT DOOR

The windows located in the left and right front doors shall have a standard green automotive tint which shall allow seventy-five percent (75%) light transmittance.

GLASS REAR DOOR RH

The rear right hand side crew door shall include a window which is 27.00 inches in width X 26.00 inches in height. The window shall be a powered type and shall be controlled by a switch on the inner door panel and on the driver's door panel.

GLASS TINT REAR DOOR RIGHT HAND

The window located in the right hand side rear door shall include a standard green automotive tint which shall allow seventy-five percent (75%) light transmittance.

GLASS REAR DOOR LH

The rear left hand side crew door shall include a window which is 27.00 inches in width X 26.00 inches in height. The window shall be a powered type and shall be controlled by a switch on the inner door panel and on the driver's door panel.

GLASS TINT REAR DOOR LEFT HAND

The window located in the left hand side rear door shall include a standard green automotive tint which shall allow seventy-five percent (75%) light transmittance.

GLASS SIDE MID RH

The cab shall include a window on the officer's side behind the front and ahead of the crew doors which shall measure 16.00 inches wide X 26.00 inches high. This window shall be fixed within this space and shall be rectangular in shape. The window shall be mounted using self locking window rubber. The glass utilized for this window shall include a green automotive tint unless otherwise noted.

GLASS TINT SIDE MID RIGHT HAND

The window located on the right hand side of the cab between the front and rear doors shall include a standard green automotive tint which shall allow seventy-five percent (75%) light transmittance.

GLASS SIDE MID LH

The cab shall include a window on the driver's side behind the front door and ahead of the crew door and above the wheel well which shall measure 16.00 inches wide X 26.00 inches high. This window shall be fixed within this space and shall be rectangular in shape. The window shall be mounted using self locking window rubber. The glass utilized for this window shall include a green automotive tint unless otherwise noted.

GLASS TINT SIDE MID LEFT HAND

The window located on the left hand side of the cab between the front and rear doors shall include a standard green automotive tint which shall allow seventy-five percent (75%) light transmittance.

CLIMATE CONTROL

The cab shall include a 57,600 BTU @ 425 CFM front overhead heater/defroster which shall be provided and installed above the windshield between the sun visors.

The cab shall also include a combination heater air-conditioning unit mounted on the engine tunnel. This unit shall offer eight (8) adjustable louvers, (4 forward facing , four rearward facing) a temperature control valve and two (2) blowers offering three (3) speeds which shall be capable of circulating 550 cubic feet of air per minute. The unit shall be rated for 42,500 BTU/Hr of cooling and 36,000 BTU/Hr of heating. The temperature and blower controls shall be located on the heater/air conditioning unit.

All defrost/heating systems shall be plumbed with one (1) seasonal shut-off valve at the front corner on the right side of the cab.

The air conditioner lines shall be a mixture of custom bent zinc coated steel fittings and Aero-quip GH 134 flexible hose with Aero-Quip EZ-Clip fittings.

CLIMATE CONTROL ACTIVATION

The heating controls, and air conditioning if included, shall be located on the climate control unit.

A/C CONDENSER LOCATION

A roof mounted A/C condenser shall be installed centered on cab forward of raised roof against the slope rise.

A/C COMPRESSOR

The air-conditioning compressor shall be a belt driven, engine mounted, open type compressor that shall be capable of producing a minimum of 13000 BTU at 1500 engine RPMs. The compressor shall utilize R-134A refrigerant and PAG oil.

CAB INSULATION

The cab ceiling and walls shall include 1.00 inch thick foam insulation. The insulation shall act as a barrier absorbing noise as well as assisting in sustaining the desired climate within the cab interior.

UNDER CAB INSULATION

The underside of the cab tunnel surrounding the engine shall be lined with multi-layer foam insulation, engineered for application inside diesel engine compartments.

The insulation shall act as a noise barrier, absorbing noise thus keeping the decibel level in the cab well within NFPA recommendations. As an additional benefit, the insulation shall assist in sustaining the desired temperature within the cab interior.

The insulation shall measure .56 inch thick including a 1.0#/sf PVC barrier and a moisture and heat reflective foil backing, reinforced with fiberglass strands. The foil surface acts as protection against moisture and other contaminants. The insulation shall meet or exceed FMVSS 302 flammability test.

The insulation shall be cut precisely to fit each section and sealed for additional heat and sound deflection. The insulation shall be held in place by 3 mils of acrylic pressure sensitive adhesive and aluminum pins with hard hat, hold in place fastening heads.

INTERIOR TRIM FLOOR

The floor of the cab shall be covered with a multi-layer mat consisting of 0.25 inch thick sound absorbing closed cell foam with a 0.06 inch thick non-slip vinyl surface with a pebble grain finish. The covering shall be held in place by a pressure sensitive adhesive and aluminum trim molding. All exposed seams shall be sealed with silicone caulk matching the color of the floor mat to reduce the chance of moisture and debris retention.

INTERIOR TRIM VINYL

The cab interior shall include trim on the front and rear crew ceiling, the cab walls and the rear wall of the cab. The trim shall be constructed of insulated vinyl over a hard board backing. The trim shall be securely fastened to the interior of the cab utilizing snap style fasteners with a decorative cover for a more appealing appearance.

REAR WALL INTERIOR TRIM

The rear wall of the cab shall be trimmed with vinyl.

HEADER TRIM

The cab interior shall include the header above the driver and officer positions which shall be constructed of vacuum formed ABS panel.

INTERIOR TRIM SUN VISOR

The header shall include two (2) 7.00 inches high X 18.00 inches wide impact resistant, transparent acrylic polycarbonate sun visors with a smoke gray tint shall be provided and installed on the header above the driver and officer.

The see thru visors are designed for maximum flexibility of positioning utilizing an arm with virtually unlimited adjustability with 13.50 inch long lateral travel of the tinted visor at the end of the arm which can be locked in place by a thumbscrew.

The visors are easily adjusted and can be placed into a chosen position with one hand. The sun visors will help protect vehicle occupants from solar glare without obscuring their vision.

TRIM CENTER DASH

The main center dash area shall be constructed of durable vacuum formed ABS composite.

TRIM LH DASH

The left hand dash shall be a one (1) piece durable vacuum formed ABS composite housing which shall be custom molded for a perfect fit around the instrument panel and the lower control panels to the left and right of the steering column.

TRIM RH DASH

The right hand dash trim shall consist of a vacuum formed ABS composite module, which contains a glove compartment with a hinged locking door and a Mobile Data Terminal (MDT) provision. The glove compartment size shall be 13.50 inches wide X 6.25 inches high X 5.50 inches deep. The MDT provision shall be provided above the glove compartment.

ENGINE TUNNEL TRIM

The cab engine tunnel shall be covered with .44 of an inch thick multi-layer mat consisting of .25 inch closed cell foam, .13 of an inch thick PVC acoustical barrier and .06 inch thick non-slip pebble grain. The engine tunnel mat shall be trimmed with anodized aluminum stair nosing trim for an aesthetically pleasing appearance.

POWER POINT DASH MOUNT

The cab shall include two (2) 12 volt cigarette lighter type receptacles in the center cab dash to provide a power source for 12 volt electrical equipment. The receptacles shall be wired to be live with the battery master switch.

AUXILIARY POWER POINT ENGINE TUNNEL

The cab interior shall include two (2) 12 volt cigarette lighter type receptacles to provide power sources for 12 volt electrical equipment. The receptacles shall be connected directly to the batteries. The receptacles shall be located on the top of the engine tunnel near the rear, one (1) at the left corner and one (1) at the right corner.

STEP TRIM

Each cab entry door shall include a three step entry. The first step closest to the ground shall be constructed of polished 5032 H32 aluminum Grip Strut® grating with angled outer corners. The step shall feature a splash guard to reduce water and debris from splashing in to the step. The splash guard shall have an opening on the outer edge to allow debris and water to flow through rather than becoming trapped within the stepping surface. The lower step shall be mounted to a frame which is integral with the construction of the cab for rigidity and strength. The middle step shall be integral with the cab construction and shall be trimmed with a Flex-Tred® adhesive grit surface material.

INTERIOR DOOR TRIM

The doors of the cab shall include an aluminum plate the same weight and grade as the cab on the interior of the door. The aluminum shall be then painted.

DOOR TRIM CUSTOMER NAMEPLATE

The interior door trim on the front doors shall include a customer nameplate which states the vehicle was custom built for their Department.

CAB DOOR TRIM REFLECTIVE

The interior of each door shall include high visibility reflective tape. A white reflective tape that measures 1.00 inch in width shall be provided vertically along the rear outer edge of the door. The lowest portion of each door skin shall include a reflective tape chevron with red and white stripes and a Spartan logo. The chevron tape shall measure 6.00 inches in height.

INTERIOR GRAB HANDLE "A" PILLAR

There shall be two (2) rubber covered 11.00 inch grab handles installed inside the cab, one on each "A" post at the left and right door openings. The left handle shall be located 8.75 inches above the bottom of the door window opening and the right handle shall be located 1.00 inch above the bottom of the door window opening. The handles shall assist personnel in entering and exiting the cab.

INTERIOR GRAB HANDLE FRONT DOOR

Each front door shall include one (1) ergonomically contoured 9.00 inch cast aluminum handle mounted horizontally on the interior door panels. The handles shall feature a textured black powder coat finish to assist personnel entering and exiting the cab.

INTERIOR GRAB HANDLE REAR DOOR

A black powder coated cast aluminum assist handle shall be provided on the inside of each rear crew door. A 30.00 inch long handle shall extend horizontally the width of the window just above the window sill. The handle shall assist personnel in exiting and entering the cab.

INTERIOR TRIM VINYL COLOR

The cab interior vinyl trim surfaces shall be gray in color.

INTERIOR ABS TRIM COLOR

The cab interior vacuum formed ABS composite trim surfaces shall be gray in color.

INTERIOR FLOOR MAT COLOR

The cab interior floor mat shall be gray in color.

CAB PAINT INTERIOR DOOR TRIM

The inner door panel surfaces shall be painted with Zolatone #20-71 onyx black texture finish.

DASH PANEL GROUP

The main center dash area shall include three (3) removable panels located one (1) to the right of the driver position, one (1) in the center of the dash and one (1) to the left of the officer position. The center panel shall be within comfortable reach of both the driver and officer.

SWITCHES CENTER PANEL

The center dash panel shall include eighteen (18) rocker switch positions in a twelve (12) over six (6) configuration in the left portion of the panel.

A rocker switch with a blank legend installed directly above shall be provided for any position without a switch and legend designated by a specific option. The non-specified switches shall be two-position, black switches with a green indicator light. Each blank switch legend can be custom engraved by the body manufacturer. All switch legends shall have red backlighting provided.

SWITCHES LEFT PANEL

The left dash panel shall include eight (8) switches. There shall be six (6) switches across the top of the panel and two (2) staggered on the left hand portion of the panel. Five (5) of the top row of switches shall be rocker type and the left one (1) shall be the headlight switch. The remaining switches shall consist of one (1) windshield wiper/washer control switch and one (1) instrument lamp dimmer switch.

A rocker switch with a blank legend installed directly above shall be provided for any position not designated by a specific option. The non-designated switches shall be two-position, black switches with a green indicator light. Each blank switch legend can be custom engraved by the body manufacturer. All switch legends shall have red backlighting provided.

SWITCHES RIGHT PANEL

The right dash panel shall include eight (8) rocker switch positions in a four (4) over four (4) switch configuration.

A rocker switch with a blank legend installed directly above shall be provided for any position without a switch and legend designated by a specific option. The non-specified switches shall be two-position, black switches with a green indicator light. Each blank switch legend can be custom engraved by the body manufacturer. All switch legends shall have red backlighting provided.

SEAT BELT WARNING

A Class One seat belt warning system, integrated with the Vehicle Data Recorder system, shall be installed for each seat within the cab. The system shall activate an indicator light in the instrument panel, a digital seat position indicator with a seat position legend in the switch panel, and an audible alarm.

The warning system shall activate when any seat is occupied with a minimum of 60 pounds, the corresponding seat belt remains unfastened, and the park brake is released. The warning system shall also activate when any seat is occupied, the corresponding seat belt was fastened in an incorrect sequence, and the park brake is released. Once activated, the visual indicators and audible alarm shall remain active until all occupied seats have the seat belts fastened.

OCCUPANCY ROLLOVER PROTECTION

The vehicle shall include the Spartan Chassis RollTek™ rollover occupant protection system which shall secure occupants, increase the survivable space within the cab and protect against head/neck injuries in the event of a roll over accident.

The system shall function using a microprocessor-controlled, solid-state sensing device which, when the system detects a side roll shall provide instantaneous occupant protection (less than 0.3 seconds from trigger to total deployment) by automatically initiating the following sequence:

1. The seat belt shall tighten around the occupant on all seats excluding theatre flip-up style seating.
2. The air suspension on each seat shall be reduced to its lowest position, tightens belt around occupant and locking the seat in this position thereby providing more survivable space and minimizing head contact with the interior roof (available when air suspension seats are specified).
3. An inflatable curtain shall deploy which includes an air filled bag across the driver's and passenger's side windows which shall protect and cushion the head and neck of the occupant thereby reducing movement and the chance of head contact with the side of the vehicle. The inflatable curtain shall be applicable on all seats adjacent to the cab side excluding theatre flip-up style seating.

System Components Shall Include:

Integrated Roll Sensor **IRS** - detects an imminent rollover, activates protective devices and records crash events.

Integrated Belt Pretension **IBP** device (not available with air suspension seats) - tightens the seat belt around occupant, securing occupant in seat and positions occupant for contact with integrated head cushion.

Seat Pull-down System **S4S** (air suspension seats only) - locks seat to lowest position, increases survivable space, tightens belt around occupant, secures occupant in seat and positions occupant for contact with integrated head cushion.

Inflatable Head Cushion **IHC** - protects head/neck and shields occupant from dangerous surfaces. Remains inflated for 8-10 seconds. This device shall affect the driver, officer and adjacent seats to cab side excluding theatre flip-up style seating.

SEAT MATERIAL

The seats shall include a covering of high strength, wear resistant fabric made of durable ballistic polyester. A PVC coating shall be bonded to the back side of the material to help protect the seats from UV rays and from being saturated or contaminated by fluids. Common trade names for this material are Imperial 1200 and Durawear.

SEAT COLOR

All seats supplied with the chassis shall be gray in color. All seats shall include red seat belts.

SEAT BACK LOGO

The seat back shall include a black and gray diamond logo which features a capital S in red located in the middle of the diamond. The logo shall be centered on the standard headrest of the seat back and on the left side of a split headrest.

SEAT DRIVER

The driver's seat shall be a Seats Inc. 911 Universal series. The four-way seat shall feature 3.00 inch vertical travel air suspension and manual fore and aft adjustment with 6.00 inches of travel. The suspension control shall be located on the seat below the left front corner of the bottom cushion. The bottom seat cushion shall include an adjustment for rake angle offering added comfort.

The seat position shall include a three-point shoulder harness with lap belt and an automatic retractor attached to the cab. The buckle portion of the seat belt shall be mounted on a semi-rigid stalk extending from the seat base within easy reach of the occupant.

The minimum vertical dimension from the seat H-point to the ceiling for this belted seating position shall be 37.00 inches measured with the seat suspension height adjusted to the upper limit of its travel.

This model of seat shall have successfully completed the static load tests set forth by FMVSS 207/210. This testing shall include a simultaneous forward load of 3000 pounds each on the lap and shoulder belts and twenty (20) times the weight through the center of gravity. This model of seat installed in the cab model, as specified, shall have successfully completed the dynamic sled testing using FMVSS 208 as a guide with the following accommodations. In order to reflect the larger size outfitted firefighters, the test dummy used shall be a 95th percentile hybrid III male weighing 225 pounds rather than the 50th percentile male dummy weighing 165 pounds as referenced in FMVSS 208.

The materials used in construction of the seat shall also have successfully completed testing with regard to the flammability of materials used in the occupant compartments of motor vehicles as outlined in

FMVSS 302, of which dictates the allowable burning rate of materials in the occupant compartments of motor vehicles.

SEAT BACK DRIVER

The driver's seat shall feature a two (2) way adjustable lumbar support and offer an infinite fully reclining adjustable titling seat back. The seat back shall also feature a contoured head rest.

OCCUPANCY ROLLOVER PROTECTION DRIVER

The driver's position shall be equipped with the RollTek® Rollover Occupant Protection System.

SEAT OFFICER

The officer's seat shall be a Seats Inc. 911 ABTS series. The seat shall feature a tapered and padded seat, and cushion. The seat shall be a non-adjustable type seat.

The seat shall feature an all belts to seat (ABTS) style of safety restraint. The ABTS feature shall include a three-point shoulder harness with the lap belt and automatic retractor as an integral part of the seat assembly. The buckle portion of the seat belt shall extend from the seat base towards the driver position within easy reach of the occupant.

The minimum vertical dimension from the seat H-point to the ceiling for this belted seating position shall be 35.00 inches.

This model of seat shall have successfully completed the static load tests by FMVSS 207/210. This testing shall include a simultaneous forward load of 3000 pounds each on the lap and shoulder belts and twenty (20) times the weight through the center of gravity. This model of seat installed in the cab model, as specified, shall have successfully completed the dynamic sled testing using FMVSS 208 as a guide with the following accommodations. In order to reflect the larger size outfitted firefighters, the test dummy used shall be a 95th percentile hybrid III male weighing 225 pounds rather than the 50th percentile male dummy weighing 165 pounds as referenced in FMVSS 208. The model of seats shall also have successfully completed the flammability of materials used in the occupant compartments of motor vehicles as outlined in FMVSS 302, of which decides the burning rate of materials in the occupant compartments of motor vehicles.

SEAT BACK OFFICER

The officer seat back shall include a Ziamatic brand Rol-Loc® mechanical self contained breathing apparatus (SCBA) bracket. The Positive Locking Mechanical walk away bracket shall meet NFPA 1901-03 9G dynamic requirements for cylinder restraint systems for use in crew compartments of fire truck cabs. The bracket shall be third Party tested to ten (10) times the force of gravity.

The bracket shall secure a self-contained breathing apparatus with all sizes of cylinders. The bracket shall include four PVC coated clamping arms which securely lock the SCBA in place without damaging the cylinder wall. The bracket shall also include a pull release strap which shall include a 30.00 inch nylon lanyard which activates the lever on the bracket saving the occupant from reaching behind the SCBA in order to release the bracket. The nylon strap shall be located on the right side of the seat.

The basic bracket and clamp arms shall be made of strong, yet light-weight, aluminum alloys. Hex arms and operating levers shall be plated steel to withstand years of constant use. The bracket shall allow donning of the SCBA in a fast and easy manner.

The seat back shall include a removable padded cover which shall be provided over the SCBA cavity.

OCCUPANCY ROLLOVER PROTECTION OFFICER

The officer's position shall be equipped with the RollTek® Rollover Occupant Protection System.

SEAT REAR FACING OUTER LOCATION

The crew area shall include two (2) rear facing crew seats, which include one (1) located directly behind the driver seat and one (1) located directly behind the officer seat.

SEAT CREW REAR FACING OUTER

The crew area shall include a seat in the rear facing outboard position which shall be a Seats Inc. 911 ABTS series. The seat shall feature a tapered and padded seat, and cushion.

The seat shall feature an all belts to seat (ABTS) style of safety restraint. The ABTS feature shall include a three-point shoulder harness with the lap belt and automatic retractor as an integral part of the seat assembly. The buckle portion of the seat belt shall extend from the seat base towards the driver position within easy reach of the occupant.

The minimum vertical dimension from the seat H-point to the ceiling for each belted seating position shall be 35.00 inches.

This model of seat shall have successfully completed the static load tests by FMVSS 207/210. This testing shall include a simultaneous forward load of 3000 pounds each on the lap and shoulder belts and twenty (20) times the weight through the center of gravity. This model of seat installed in the cab model, as specified, shall have successfully completed the dynamic sled testing using FMVSS 208 as a guide with the following accommodations. In order to reflect the larger size outfitted firefighters, the test dummy used shall be a 95th percentile hybrid III male weighing 225 pounds rather than the 50th percentile male dummy weighing 165 pounds as referenced in FMVSS 208. The model of seats shall also have successfully completed the flammability of materials used in the occupant compartments of motor vehicles as outlined in FMVSS 302, of which decides the burning rate of materials in the occupant compartments of motor vehicles.

SEAT BACK REAR FACING OUTER

The rear facing outboard seat back shall include a Ziamatic brand Rol-Loc® mechanical self contained breathing apparatus (SCBA) bracket. The Positive Locking Mechanical walk away bracket shall meet NFPA 1901-03 9G dynamic requirements for cylinder restraint systems for use in crew compartments of fire truck cabs. The bracket shall be third Party tested to ten (10) times the force of gravity.

The bracket shall secure a self-contained breathing apparatus with all sizes of cylinders. The bracket shall include four PVC coated clamping arms which securely lock the SCBA in place without damaging the cylinder wall. The bracket shall also include a pull release strap with a "T" handle which activates the

lever on the bracket saving the occupant from reaching behind the SCBA in order to release the bracket. The handle shall be located on the front of the seat in the center.

The basic bracket and clamp arms shall be made of strong, yet light-weight, aluminum alloys. Hex arms and operating levers shall be plated steel to withstand years of constant use. The bracket shall allow donning of the SCBA in a fast and easy manner.

The seat back shall include a removable padded cover which shall be provided over the SCBA cavity.

SEAT MOUNTING REAR FACING OUTER

The rear facing outer seats shall offer special mounting positions which shall be 2.00 inches towards the rear wall offering additional space between the front seats and the outer rear facing seats.

OCCUPANCY ROLLOVER PROTECTION RFO

The rear facing outboard seating position shall be equipped with the RollTek® Rollover Occupant Protection System.

SEAT BELT ORIENTATION CREW

The crew position seat belts shall follow the standard orientation which extends from the outboard shoulder extending to the inboard hip.

SEAT FORWARD FACING CENTER LOCATION

The crew area shall include two (2) forward facing center crew seats with both located at the center of the rear wall.

SEAT CREW FORWARD FACING CENTER

The crew area shall include a seat in the forward facing center position which shall be a Seats Inc. 911 series. The seat shall feature a tapered and padded seat, and cushion. The seat and cushion shall be hinged and compact in design for additional room and shall remain in the stored position until occupied.

The seat shall feature an all belts to seat (ABTS) style of safety restraint. The ABTS feature shall include a three-point shoulder harness with the lap belt and automatic retractor as an integral part of the seat assembly. The buckle portion of the seat belt shall extend from the seat base towards the driver position within easy reach of the occupant.

The minimum vertical dimension from the seat H-point to the ceiling for each belted seating position shall be 35.00 inches.

This model of seat shall have successfully completed the static load tests by FMVSS 207/210. This testing shall include a simultaneous forward load of 3000 pounds each on the lap and shoulder belts and twenty (20) times the weight through the center of gravity. This model of seat installed in the cab model, as specified, shall have successfully completed the dynamic sled testing using FMVSS 208 as a guide with the following accommodations. In order to reflect the larger size outfitted firefighters, the test dummy used shall be a 95th percentile hybrid III male weighing 225 pounds rather than the 50th percentile male

dummy weighing 165 pounds as referenced in FMVSS 208. The model of seats shall also have successfully completed the flammability of materials used in the occupant compartments of motor vehicles as outlined in FMVSS 302, of which decides the burning rate of materials in the occupant compartments of motor vehicles.

SEAT BACK FORWARD FACING CENTER

The forward facing center seat backs shall include a Ziamatic brand Rol-Loc® mechanical self contained breathing apparatus (SCBA) bracket. The Positive Locking Mechanical walk away bracket shall meet NFPA 1901-03 9G dynamic requirements for cylinder restraint systems for use in crew compartments of fire truck cabs. The bracket shall be third Party tested to ten (10) times the force of gravity.

The bracket shall secure a self-contained breathing apparatus with all sizes of cylinders. The bracket shall include four PVC coated clamping arms which securely lock the SCBA in place without damaging the cylinder wall. The bracket shall also include a pull release strap which shall include a 30.00 inch nylon lanyard which activates the lever on the bracket saving the occupant from reaching behind the SCBA in order to release the bracket. The nylon strap shall be located on the right side of the seat.

The basic bracket and clamp arms shall be made of strong, yet light-weight, aluminum alloys. Hex arms and operating levers shall be plated steel to withstand years of constant use. The bracket shall allow donning of the SCBA in a fast and easy manner.

The seat back shall include a removable padded cover which shall be provided over the SCBA cavity.

SEAT MOUNTING FORWARD FACING CENTER

The forward facing center seats shall be installed facing the front of the cab.

OCCUPANCY ROLLOVER PROTECTION FFC

The forward facing center seating position shall be equipped with the RollTek® Rollover Occupant Protection System.

SEAT FRAME FORWARD FACING

The forward facing center seating positions shall include an enclosed seat frame which is located and installed on the rear wall. The seat frame shall measure 42.38 inches wide X 12.38 inches high X 22.00 inches deep. The seat frame shall be constructed of 5052-H32 Marine Grade 0.19 inch thick aluminum plate. The seat box shall be painted with the same color as the remaining interior.

SEAT FRAME FORWARD FACING STORAGE ACCESS

There shall be two (2) access points to the seat frame storage area, one (1) on each side of the seat frame. Each access point shall be covered by a hinged door which measures 15.00 inches in width X 10.63 inches in height.

CAB FRONT UNDERSEAT STORAGE ACCESS

The left and right under seat storage areas shall have a removable aluminum cover.

SEAT COMPARTMENT DOOR FINISH

All underseat storage compartment access doors shall have a Zolatone #20-71 onyx black texture finish.

WINDSHIELD WIPER SYSTEM

The cab shall include a parallel arm wiper system which shall clear the windshield of water, ice and debris. There shall be two (2) windshield wipers, one (1) for the driver and one (1) for the officer, which shall be affixed to a rod style arm. The system shall include dual motors which shall initiate the arms in which both the driver and officer windshield wipers are attached, initiating a back and forth motion for each wiper. The wiper motors shall be activated by an intermittent wiper control located within easy reach of the driver's position.

ELECTRONIC WINDSHIELD FLUID LEVEL INDICATOR

The windshield washer fluid level shall be monitored electronically. When the washer fluid level becomes low the yellow "Check Message Center" indicator light on the instrument panel shall illuminate and the message center in the speedometer shall display a "Check Washer Fluid Level" message.

CAB DOOR HARDWARE

The cab entry doors shall be equipped with exterior pull handles, suitable for use while wearing firefighter gloves. The handles shall be made of aluminum with a chrome plated finish.

The interior exit door handles shall be flush paddle type with a black finish, which are incorporated into the upper door panel.

All cab entry doors shall include locks which are keyed alike. The door locks shall be designed to prevent accidental lockout.

The exterior pull handles shall include a scuff plate behind the handle constructed of polished stainless steel to help protect the cab finish.

DOOR LOCKS

Each cab entry door shall include a manually operated door lock. The each door lock may be actuated from the inside of the cab by means of a red knob located on the paddle handle of the respective door or by using a TriMark key from the exterior. The door locks are designed to prevent accidental lock out.

DOOR LOCK LH REAR CAB COMPARTMENT

The left hand side rear compartment shall feature a manual door lock.

DOOR LOCK RH REAR CAB COMPARTMENT

The right hand side rear compartment shall feature a manual door lock.

GRAB HANDLES

The cab shall include one (1) 18.00 inch knurled, anti-slip, one-piece exterior assist handle behind each cab door. The grab handle shall be made of 14 gauge 304- stainless steel and be 1.25 inch diameter to enable non-slip assistance with a gloved hand.

REARVIEW MIRRORS

Retrac Aerodynamic West Coast style single vision mirror heads model 613285 shall be provided and installed on each of the front cab doors.

The mirrors shall be mounted via 1.00 inch diameter tubular stainless steel arms to provide a rigid mounting to reduce mirror vibration.

The mirrors shall measure 8.00 inches wide X 19.00 inches high and shall include an 8.00 inch convex mirrors with a stainless steel back, model 980-4, installed below the flat glass to provide a wider field of vision. The flat mirrors shall be motorized with remote horizontal and vertical adjustment. The control switches shall be mounted within easy reach of the driver. The convex mirrors shall be manually adjustable. The flat mirror glass shall be heated for defrosting in severe cold weather conditions.

The mirror backs shall be constructed of vacuum formed chrome plated ABS plastic housings that are corrosion resistant and shall include an amber marker light. The mirrors shall be manufactured with the finest quality non-glare glass.

REARVIEW MIRROR HEAT SWITCH

The heat for the rearview mirrors shall be controlled through a rocker switch in the mirror control panel on the driver's side dash.

CAB FENDER

Full width wheel well liners shall be installed on the extruded cab to limit road splash and enable easier cleaning. Each two-piece liner shall consist of an inner liner 16.00 inches wide made of vacuum formed ABS composite and an outer fenderette 3.50 inches wide made of 12 gauge polished aluminum.

MUD FLAPS FRONT

The front wheel wells shall have mud flaps installed on them.

CAB EXTERIOR FRONT & SIDE EMBLEMS

The cab shall include three (3) Spartan emblems. There shall be one (1) installed on the front air intake grille and one (1) installed on each side of the cab exterior above the wheel well.

CAB EXTERIOR MODEL NAMEPLATE

The cab shall include custom “Metro Star” nameplates on the front driver and officer side doors.

IGNITION

A master battery system with a keyless start ignition system shall be provided. Each system shall be controlled by a ¼ turn Cole Hersee switch, both of which shall be mounted to the left of the steering wheel on the dash. A chrome push type starter button shall be provided adjacent to the master battery and ignition switches.

Each switch shall illuminate a green LED indicator light on the dash when the respective switch is placed in the “ON” position.

The starter button shall only operate when both the master battery and ignition switches are in the “ON” position.

BATTERY

The single start electrical system shall include (6) Harris BCI 31 950 CCA batteries with a 210 minute reserve capacity and 4/0 welding type dual path starter cables per SAE J541. The cables shall have encapsulated ends with heat shrink and sealant.

BATTERY TRAY

The batteries shall be installed within two (2) steel battery trays located on the left side and right side of the chassis, securely bolted to the frame rails. The battery trays shall be coated with the same material as the frame.

The battery trays shall include drain holes in the bottom for sufficient drainage of water. A durable, non-conducting, interlocking mat made by Dri-Dek shall be installed in the bottom of the trays to allow for air flow and help prevent moisture build up. The batteries shall be held in place by non-conducting phenolic resin hold down boards.

BATTERY CABLE

The starting system shall include cables which shall be protected by 275 degree F. minimum high temperature flame retardant loom, sealed and encapsulated at the ends with heat shrink and sealant.

BATTERY JUMPER STUD

The starting system shall include battery jumper studs. These studs shall be located in the forward most portion of the driver's side lower step. The studs shall allow the vehicle to be jump started, charged, or the cab to be raised in an emergency in the event of battery failure.

ALTERNATOR

The charging system shall include a 320 amp Leece-Neville 12 volt alternator. The alternator shall include a self-exciting integral regulator.

BATTERY CONDITIONER

A Kussmaul 1200 battery conditioner shall be supplied. The battery conditioner shall be mounted in the cab behind the driver's seat.

BATTERY CONDITIONER DISPLAY

A Kussmaul battery conditioner display shall be supplied. The battery conditioner display shall be mounted in the cab, viewable through the cab mid side window behind the left front door.

ELECTRICAL INLET

A Kussmaul 20 amp super auto-eject electrical receptacle shall be supplied. It shall automatically eject the plug when the starter button is depressed.

A single item or an addition of multiple items must not exceed the rating of the electric inlet that it's connected to.

Amp Draw Reference List:

Kussmaul 1000 Charger - 3.5 Amps

Kussmaul 1200 Charger - 10 Amps

Kussmaul 35/10 Charger - 10 Amps

1000W Engine Heater - 8.33 Amps

1500W Engine Heater - 12.5 Amps

120V Air Compressor - 4.2 Amps

ELECTRICAL INLET LOCATION

An electrical inlet shall be installed on the left hand side of cab over the wheel well.

ELECTRICAL INLET CONNECTION

The electrical inlet shall be connected to the battery conditioner.

ELECTRICAL INLET COLOR

The Kussmaul electrical inlet connection shall include a yellow cover.

HEADLIGHTS

The cab front shall include four (4) rectangular halogen headlamps with separate high and low beams mounted in bright chrome bezels. The headlamps shall be equipped with the "Daytime Running" light feature, which shall illuminate the headlights to 80% brilliance when the ignition switch is in the "On" position and the parking brake is released.

FRONT TURN SIGNALS

The front fascia shall include two (2) Whelen model 600 4.00 inch X 6.00 inch LED programmable amber turn signals which shall be installed in a chrome bezel outboard of the front warning and headlamps.

HEADLIGHT LOCATION

The headlights shall be located on the front fascia of the cab directly below the front warning lights.

SIDE TURN/MARKER LIGHTS

The sides of the cab shall include (2) LED round side marker lights which shall be provided just behind the front cab radius corners.

MARKER AND ICC LIGHTS

In accordance with FMVSS, there shall be five (5) cab LED marker lamps designating identification, center and clearance provided. These lights shall be installed on the face of the cab within full view of other vehicles from ground level.

HEADLIGHT AND MARKER LIGHT ACTIVATION

The headlights and marker lights shall be controlled through a rocker switch within easy reach of the driver. There shall be a dimmer switch within easy reach of the driver to adjust the brightness of the dash lights.

GROUND LIGHTS

Each door shall include an incandescent NFPA compliant ground light mounted to the under side of the cab step below each door. Each light shall include a polycarbonate lens, a housing which is vibration welded and a bulb which shall be shock mounted for extended life. The ground lighting shall be activated by the opening of the respective door as well as being activated when the parking brake is set.

STEP LIGHTS

The middle step located at each door shall include a 4.00 inch round incandescent light which shall activate with the opening of the respective door.

ENGINE COMPARTMENT LIGHT

There shall be an incandescent NFPA compliant light mounted under the engine tunnel for area work lighting on the engine. The light shall include a polycarbonate lens, a housing which is vibration welded and a bulb which shall be shock mounted for extended life. The light shall activate automatically when the cab is tilted.

SIDE SCENE LIGHTS

The side of the cab shall include two (2) Whelen model 810 scene lights, one (1) each side which shall be surface mounted. The Whelen lights shall offer halogen lighting with 8 to 32-degree internal optics.

SIDE SCENE LIGHT LOCATION

The scene lighting located on the driver and officer sides of the cab shall be mounted in the upper mid forward portion of the 10.00 inch raised roof of the cab between the front and rear crew doors.

SIDE SCENE ACTIVATION

The scene lights shall be activated by two (2) rocker switches located in the switch panel, one (1) for each light.

REAR SCENE LIGHTS

The rear of the cab shall include two (2) Whelen model 810 scene lights. The Whelen lights shall be surface mounted and shall offer halogen lighting at a 32 degree angle.

REAR SCENE LIGHT LOCATION

The rear scene lights shall be located at the top of the rear wall on both the left and right outer positions.

REAR SCENE LIGHT ACTIVATION

The rear scene lighting shall be activated via a single rocker switch located inside the cab on the switch panel.

INTERIOR OVERHEAD LIGHTS

The cab shall include a two-section incandescent dome lamp with a red and clear lens located over each door. The dome lamps shall be rectangular in shape and shall measure approximately 9.50 inches in length X 5.00 inches in width with a black colored bezel. The clear portion of each lamp shall be activated by opening the respective door and both the red and clear portions can be activated by individual switches on each lamp.

An additional incandescent three (3) light module with dual map lights shall be located over the engine tunnel which can be activated by individual switches on the lamp.

MAP LIGHTS

A Roxter gooseneck style map light shall be provided. The light shall have a clear bulb and a control switch on the base. The light shall be located on the right hand side of the dash.

SPOTLIGHT

The officer position shall include a 12 volt Optronics KB-4003 hand-held spotlight which shall be mounted to the right of the engine tunnel. The Optronics spot light shall offer 400,000 candle power. It shall have a 10.00 foot coiled cord and a momentary push button switch.

DO NOT MOVE APPARATUS LIGHT

The front headliner of the cab shall include a red flashing light, located in the center for greatest visibility. The light shall be 6.00 inches long X 2.50 inches wide X 1.75 inches high and shall be clearly labeled "Do Not Move Apparatus". In addition to the flashing red light, an audible alarm shall be included which shall sound when a door is open and the parking brake is released.

The light and alarm shall be interlocked for activation when a cab door is not firmly closed, an apparatus cabinet door is not closed and the parking brake is released.

MASTER WARNING SWITCH

A master switch shall be included in the main rocker switch panel. The switch shall be a rocker type, red in color and labeled "Master" for identification. The switch shall feature control over all devices wired through it. Any warning device switch left in the "ON" position shall automatically power up when the master switch is activated.

HEADLIGHT FLASHER

An alternating high beam headlamp flashing system shall be installed into the high beam headlamp circuit which shall allow the high beams to flash alternately from left to right.

Deliberate operator selection of high beams will override the flashing function until low beams are again selected. Per NFPA, these clear flashing lights will also be disabled "On Scene" when the park brake is applied.

HEADLIGHT FLASHER SWITCH

The flashing headlights shall be activated through a rocker switch on the switch panel. The rocker switch shall be clearly labeled for identification.

INBOARD FRONT WARNING LIGHTS

The cab front fascia shall include dual Whelen series 600 Super LED warning lights which shall offer multiple flash patterns including steady burn for solid colors and multiple flash patterns for split colors. The lights shall be surface mounted to the front fascia of the cab within a chrome bezel in the inboard position.

INBOARD FRONT WARNING LIGHTS COLOR

The front warning lights mounted on the fascia in the inboard positions shall be red with a clear lens.

FRONT WARNING SWITCH

The front warning lights shall be controlled via rocker switch on the main panel. This switch shall be clearly labeled for identification.

INTERSECTION WARNING LIGHTS

The chassis shall include two (2) Whelen series 600 Super LED 4.00 inch X 6.00 inch intersection warning lights, one (1) each side, which shall offer multiple flash patterns including steady burn for solid colors and multiple flash patterns for split colors.

INTERSECTION WARNING LIGHTS COLOR

The intersection lights shall be red with a clear lens.

INTERSECTION WARNING LIGHTS LOCATION

The intersection lights shall be mounted in the rear position on the side of the bumper.

SIDE WARNING LIGHTS

The cab sides shall include a Whelen series 700 Super LED 3.00 inch X 7.00 inch warning light, one (1) each side, which shall offer multiple flash patterns including steady burn for solid colors and multiple flash patterns for split colors.

SIDE WARNING LIGHTS COLOR

The warning lights located on the side of the cab shall be red with clear lens.

SIDE WARNING LIGHTS LOCATION

The warning lights on the side of the cab shall be mounted over the front wheel well directly over the center of the front axle.

SIDE AND INTERSECTOR WARNING SWITCH

The side and intersector warning lights shall be controlled by a rocker switch on the switch panel. This switch shall be clearly labeled for identification.

LIGHTBAR PROVISION

The light bar(s) installed at the front of the cab roof shall be provided and installed by Spartan Chassis. The light bar installation shall include mounting and wiring to a control switch on the cab dash.

CAB FRONT LIGHTBAR

The lightbar provisions shall be for one (1) Whelen brand Freedom FN72QLED lightbar mounted centered on the front of the cab roof. The lightbar shall be 72.00 inches in length. The lightbar shall feature twelve (12) red LED lights and two (2) clear LED lights. The clear lights shall be disabled with park brake engaged. The cable shall exit the lightbar on the right side of the cab.

LIGHTBAR SWITCH

The light bar shall be controlled by a rocker switch located on the switch panel. This switch shall be clearly labeled for identification.

INTERIOR DOOR OPEN WARNING LIGHTS

The interior of each door shall include one (1) red 4.00 inch diameter Truck-Lite LED warning light located on the door panel. Each light shall activate with a flashing pattern when the door is in the open position to serve as a warning to oncoming traffic.

SIREN CONTROL HEAD

A Whelen 295HFS2 200 watt “hands free” remote siren amplifier control head shall be provided and flush mounted in the switch panel with a location specific to the customer’s needs. The siren shall feature hands free mode and will be in “standby” mode awaiting instruction. The siren shall offer radio broadcast, public address, wail, yelp, or piercer tones and hands free operation which shall allow the operator to turn the siren on and off from the horn ring if a horn/siren selector switch option is also selected.

HORN BUTTON SELECTOR SWITCH

A rocker switch shall be installed in the switch panel between the driver and officer to allow control of either the electric horn or the air horn from the steering wheel horn button. The electric horn shall sound by default when the selector switch is in either position to meet FMCSA requirements.

AIR HORN ACTIVATION

The air horn activation shall be accomplished by the steering wheel horn button for the driver and a right hand side Linemaster model SP491-S81 foot switch for the officer. An air horn activation circuit shall be provided to the chassis harness pump panel harness connector.

BACK-UP ALARM

An ECCO model 575 backup alarm shall be installed at the rear of the chassis with an output level of 107 dB. The alarm shall automatically activate when the transmission is placed in reverse.

INSTRUMENTATION

An ergonomically designed instrument panel shall be provided. The gauges shall be backlit with red LED lamps. All gauges shall be driven by stepper motor movements. The instrumentation system shall be multiplexed and shall receive engine and transmission information over the J1939 data bus to reduce redundant sensors.

The instrument panel shall contain the following gauges:

One (1) electronic tachometer shall be included. The scale on the tachometer shall read from 0 to 3000 RPM.

One (1) electronic speedometer with an integral LCD odometer/ trip odometer and hour meter shall be included. The speedometer shall have a dual scale with miles per hour (MPH) as the dominant scale and kilometers per hour (KPH) on the minor scale. The speedometer scale shall read from 0 to 90 MPH (0 to 140 KPH). The odometer shall display up to 9,999,999.9 miles. The trip odometer shall display up to

9,999.9 miles. The LCD screen shall also be capable of displaying certain diagnostic functions. The hour meter shall display engine hours of operation.

One (1) three function gauge with primary system, secondary system and fuel level shall be included. The scale on the air pressure gauges shall read from 0 to 140 pounds per square inch (PSI). The air pressure scales shall be non-linear to expand the scales in the region of normal operation. A red indicator light in the gauge shall indicate a low air pressure. The scale on the fuel level gauge shall read from empty to full. A yellow indicator light shall indicate low fuel at the quarter tank level.

One (1) four function gauge with engine oil pressure, coolant temperature, transmission oil temperature and a voltmeter shall be included. The scale on the engine oil pressure gauge shall read from 0 to 140 pounds per square inch (PSI). The engine oil pressure scale shall be non-linear to expand the scale in the region of normal operation. A red indicator light in the gauge shall indicate low engine oil pressure. The scale on the coolant temperature gauge shall read from 160 to 250 degrees Fahrenheit (F). A red indicator light in the gauge shall indicate high coolant temperature. The scale on the transmission oil temperature gauge shall read from 100 to 300 degrees Fahrenheit (F). A red indicator light in the gauge shall indicate high transmission oil temperature. The scale on the voltmeter shall read from 8 to 16 volts. A red indicator light shall indicate high or low system voltage.

The instrument panel shall contain an Enunciator Module that contains the following indicator lights. All indicator lights shall contain LED lamps.

RED LAMPS

Stop Engine - indicates critical engine fault. (5)

Park Brake - indicates park brake is set.

Volts - indicates high or low system voltage. (4)

Low Oil Press - indicates low engine oil pressure. (4)

High Coolant Temp - indicates excessive engine coolant temperature. (4)

High Trans Temp - indicates excessive transmission oil temperature. (4)

Low Air - indicates low air pressure in either system one or system two. (4)

Low Coolant Level - indicates low engine coolant level. (1) (5)

Air Filter - indicates excessive engine air intake restriction. (5)

Brake System Fault – indicates a failure in the brake system (hydraulic brake systems only). (5)

Seat Belt Indicator – indicates when a seat is occupied and corresponding seat belt remains unfastened.

YELLOW LAMPS

Check Engine - indicates engine fault. (5)

Check Trans - indicates transmission fault. (5)

Wait to Start - indicates active engine air preheat cycle. (2) (5)

ABS - indicates anti-lock brake system fault. (5)

Water in Fuel - indicates presence of water in fuel filter. (1) (5)

Check Message Center – indicates there is a fault message present in the LCD digital display.

SRS – indicates a problem in the RollTek supplemental restraint system. (1) (5)

DPF – indicates a restriction of the diesel particulate filter. (3) (5)

HEST – indicates a high exhaust system temperature. (3) (5)

MIL – indicates an engine emission control system fault. (3) (5)

Low Fuel – indicates low fuel. (4)

GREEN LAMPS

Left and Right turn signal indicators.

Aux Brake Active - indicates secondary braking device is active. (1)

High Idle - indicates engine high idle is active. (1)

ATC – indicates low wheel traction for automatic tractions control equipped vehicles, also indicates mud/snow mode is active for ATC system. (1) (5)

OK to Pump – indicates the pump engage conditions have been met. (1)

Pump Engaged – indicates the pump is currently in use. (1)

BLUE LAMPS

High beam indicator.

The instrumentation system shall provide a constant audible alarm for the following situations:

Low air pressure.

Low engine oil pressure.

High engine coolant temperature.

High transmission oil temperature.

Low coolant level. (1)

High or low system voltage

Critical engine fault (Stop Engine).

The Check Message Center icon will illuminate and a message will be displayed in the LCD screen for the following situations:

Cab Ajar

Low Oil Level

Door Ajar

Engine Communication Error

Transmission Communication Error

ABS Communication Error

High Coolant Temp

Turn Signal Reminder (turn signal left on for more than one (1) mile)

Low Fuel

Low Oil Pressure

Low Coolant Level

Low Battery Voltage

High Battery Voltage

Low Primary Air Pressure

Low Secondary Air Pressure

High Trans Temp

The instrumentation system will provide a continuous alarm for the following situations:

Stop Engine

Low Coolant Level (1)

Brake System Fault

Check Trans

Check Engine

ABS

Engine Communications Error

Transmission Communications Error
ABS Communications Error
Low Fuel
Low Primary Air Pressure
Low Secondary Air Pressure
Low or High Battery Voltage
High Trans Temp
Low Oil Pressure
High Coolant Temp

The instrumentation system will provide a 160 millisecond second alarm every 880 milliseconds for the following situations:

Seat Belt
Air Filter
Water in Fuel (1)
Cab Ajar
Low Oil Level
Door Ajar

The instrumentation system will provide a 160 millisecond second alarm every 5 seconds for the following situation:

Turn Signal Reminder (turn signal left on for more than one (1) mile)

- (1) Feature only available when optionally equipped.*
- (2) Feature only available on engines with pre-heat capability.*
- (3) Feature only on vehicles with diesel particulate filter (DPF).*
- (4) Warning light is present in gauge.*
- (5) A message in the LCD screen will also be displayed.*

CAMERA

An Audiovox Voyager heavy duty rearview camera system shall be supplied. The system shall include one (1) box shaped camera shall be shipped loose for OEM installation in the body to afford the driver a clear view of the rear to the vehicle and one (1) teardrop shaped camera with a chrome plated plastic housing shall be mounted on the officer side of the cab below windshield ahead of the front door at approximately the same level as the cab door handle.

The cameras shall be wired to a 7.00 inch flip down monitor which shall include a color display and day and night brightness modes installed above the driver position. The rear camera shall activate when the transmission is placed in reverse and the right camera shall activate with the right side turn signal.

The camera system shall include a one- way communication device that shall be an integral part of the rear camera for the use of voice commands directly to the driver.

COMMUNICATION ANTENNA

An antenna base, for use with an NMO type antenna, shall be mounted on the right hand front corner of the cab roof so not to interfere with light bars or other roof mounted equipment. The antenna base shall

be an Antenex model MABVT8 made for either a 0.38 inch or 0.75 inch receiving hole in the antenna and shall include 17.00 foot of RG58 A/U cable with no connector at the radio end of the cable. The antenna base design provides the most corrosion resistance and best power transfer available from a high temperature brass construction and gold plated contact design. The antenna base shall be provided by Spartan.

COMMUNICATION ANTENNA CABLE ROUTING

The antenna cable shall be routed from the antenna base mounted on the roof to the area behind the left hand front seat.

CAB EXTERIOR PROTECTION

The cab face shall have a removable plastic film installed over the painted surfaces to protect the paint finish during transport to the body manufacturer.

FIRE EXTINGUISHER

A 2.50 pound D.O.T approved fire extinguisher with BC rating shall be shipped loose with the cab.

ROAD SAFETY KIT

The cab and chassis shall include one (1) emergency road side triangle kit.

DOOR KEYS

The cab and chassis shall include a total of four (4) door keys for the manual door locks.

DIAGNOSTIC SOFTWARE ROLLTEK

The cab and chassis shall include diagnostic software for the RollTek system shipped loose with the vehicle. The software kit number F101560 shall include an interface module with connectors to link a laptop computer to the vehicle for diagnostic purposes.

WARRANTY

The chassis manufacturer shall provide a limited parts and labor warranty to the original purchaser of the custom built cab and chassis for a period of twelve (12) months, or the first 24,000 miles, whichever occurs first. The warranty period shall commence on the date the vehicle is delivered to the end user. The warranty shall include conditional items listed in the detailed warranty document which shall be provided upon request.

OPERATION MANUAL

There shall be one (1) printed hard copy of the chassis operation manual provided with the chassis. The manual shall include a parts list specific to the chassis model.

ENGINE AND TRANSMISSION OPERATION MANUALS

There shall be two (2) printed hard copy sets of the engine operation manual and two (2) printed hard copy sets of the transmission operation manual specific to the model ordered included with the chassis in the ship loose items.

ENGINE SERVICE MANUALS

There shall be two (2) printed hard copy sets of Cummins ISC/ISL engine service reference manuals which shall be provided with the chassis.

TRANSMISSION SERVICE MANUALS

There shall be two (2) printed hard copy sets of Allison 3000 transmission service manuals included with the chassis.

AS BUILT WIRING DIAGRAMS

The cab and chassis shall include one (1) complete hard copy set of wiring schematics and option wiring diagrams.

CUSTOMER INSPECTION

There shall be a customer inspection of the chassis at Spartan Chassis in Charlotte, Michigan. The customer, the dealer, or the OEM shall be responsible for all travel costs and arrangements.

The date of the chassis inspection shall be determined based on the requested chassis completion date, OEM production schedules, the chassis off-line date, and the chassis completion date

Part 2.

CERTIFICATION OF NFPA 1901 COMPLIANCE

As per NFPA 1901, the Purchaser shall assume the responsibility of determining, prior to the purchase of the apparatus, who will be responsible for ensuring that all aspects of NFPA 1901-2009 are met. The manufacturer shall be responsible for providing or performing only the items requested by the purchaser in the documents provided to the manufacturer by the purchaser.

Written certification shall be provided by the manufacturer stating that the delivered apparatus complies with the NFPA 1901-2009 Standard. If the purchaser has elected to provide, perform, outsource and/or contract with a third party, any item required by NFPA 1901-2009 (per the previous paragraph), the manufacturer shall provide, upon delivery, a "Statement of Exceptions" per Chapter 4 of NFPA 1901-2009.

This "Statement of Exceptions" shall include:

1. A separate specification of the section of the NFPA Standard for which the apparatus is lacking compliance.
2. A description of the particular aspect of the apparatus that is not compliant.
3. A description of the further changes or modifications to the delivered apparatus which must be completed to achieve full compliance.
4. An identification of the entity who will be responsible for making the necessary post-delivery changes or modifications to the apparatus to achieved full compliance with the applicable standard.

Prior to, or at the time of, delivery of the apparatus, the Statement of Exceptions shall be signed by an authorized agent of the entity responsible for the final assembly of the apparatus and by an authorized agent of the purchasing entity, indicating a mutual understanding and agreement between the parties regarding the substance thereof.

The purchaser shall not place the apparatus into active emergency service until fully compliant with NFPA 1901-2009.

NFPA REQUIRED EQUIPMENT

The end user of this apparatus shall be providing all other equipment and accessories that is required by NFPA 1901 but not specifically listed in these specifications.

MAXIMUM TOP SPEED

The maximum top speed of this apparatus shall be determined using the following NFPA 1901 Chapter 4 criteria:

- Apparatus with 1250 gallon combined water tank capacity shall not exceed 60 MPH.
- Apparatus with GVWR of over 50,000 lbs. shall not exceed 60 MPH.
- Apparatus weighing over 26,000 lbs. shall not exceed 68 MPH.

WATEROUS MODEL CSU 1,500 GPM SINGLE STAGE PUMP

The fire pump shall be a Waterous Fire Pump Company model CSU that complies with all applicable requirements of the latest edition of the " Standard for Automotive Fire apparatus " published by the National Fire Protection Association and printed in Pamphlet 1901.

WATEROUS PUMP WARRANTY

The Waterous pump and related Waterous components shall be covered by a 5 year conditional warranty covering defects in materials and/or workmanship. Any component that is provided by Waterous with the pump system but not manufactured by Waterous will be covered by warranties of the respective manufacturer. Part failure due to normal wear and tear or improper use shall not be covered under this warranty.

UNDERWRITER'S LABORATORY CERTIFICATION

The completed apparatus shall be tested and approved by the independent testing company Underwriters Laboratories, Inc. The manufacturer of the apparatus shall be responsible for all costs involved in this test. The Certification of inspection and approval shall be presented to the Fire Chief of the Department upon delivery of the completed apparatus.

PUMP PERFORMANCE - 1,500 U.S. GPM.

The pump shall be a single stage centrifugal with a class "A" rated capacity of 1,500 United States gallons per minute. The pump shall deliver the percentage of rated discharge pressures as indicated below:

- 100 percent of rated capacity at 150 pounds net pressure.
- 70 percent of rated capacity at 200 pounds net pressure.
- 50 percent of rated capacity at 250 pounds net pressure.
- 100 percent of rated capacity at 165 pounds net pressure.

PUMP CONSTRUCTION

The fire pump shall be midship mounted. The pump shall be mounted across the chassis frame rails and shall be mounted at the Fire Pump Manufacturer's recommended angular position with the drive shafts.

The pump shall be free from objectionable pulsation and vibration under all normal operating conditions. The engine shall provide sufficient horsepower and revolutions per minute to allow the pump to meet or exceed its rated performance.

The entire pump, both suction and discharge passages, shall be hydrostatically tested to a pressure of 600 PSI. The pump shall be fully tested at the pump manufacturer's factory to the performance spots as outlined by NFPA 1901.

The pump body shall be close-grained gray iron and must be horizontally split in two sections for easy removal of the entire impeller shaft assembly and designed for complete servicing from the bottom of the truck without disturbing setting of the pump in the chassis or apparatus piping which is connected to the pump. The pump body halves shall be bolted together on a single horizontal face to minimize leakage and facilitate re-assembly.

The impeller shaft shall be stainless steel, accurately ground to size, and supported at each end by oil or grease-lubricated anti-friction ball bearings for rigid and precise support. The bearings shall be protected from water and sediment by suitable stuffing boxes, flinger rings, and oil seals. The impeller shaft shall be of a two piece construction separable between the pump and pump transmission to allow true separation of the transmission from the pump without disassembly of either component. No sleeve type bearings shall be used.

The pump transmission shall be rigidly attached to the pump body assembly and be of the latest design incorporating a high strength, involute, tooth-form Hy-Vo chain drive and driven sprockets capable of operating at high speeds to provide

smooth, quiet transfer of power.

The pump gear ratio shall be selected by the apparatus manufacturer to give the maximum performance with the engine and transmission selected.

IMPELLER - FLAME PLATE

The impeller shall be bronze with double suction inlets, accurately balances (mechanically and hydraulically), of the mixed flow design with reverse-flow, labyrinth-type, wear rings that resist water bypass and loss of efficiency due to wear. The impeller shall have a **Flame Plated Hub** to assure maximum pump life and efficiency despite the presence of abrasive particles, such as fine sand, in the water being pumped.

Wear rings to be bronze and shall be easily replaceable to restore pump efficiency and eliminate the need to replace the entire pump casing due to wear.

MECHANICAL SEAL

The pump shaft shall have face-type, self-adjusting corrosion and wear-resistant mechanical seals.

PRESSURE GOVERNOR, MONITORING, and MASTER PRESSURE DISPLAY

Fire Research InControl series TGA300 pressure governor and monitoring display kit shall be installed. The kit shall include a control module, intake pressure sensor, discharge pressure sensor, and cables. The control module case shall be waterproof and have dimensions not to exceed 5 1/2" high by 10 1/2" wide by 2" deep. Inputs for monitored information shall be from a J1939 databus or independent sensors. Outputs for engine control shall be on the J1939 databus or engine specific wiring.

The following continuous displays shall be provided:

- Pump discharge; shown with four daylight bright LED digits more than 1/2" high
- Pump Intake; shown with four daylight bright LED digits more than 1/2" high
- Pressure / RPM setting; shown on a dot matrix message display
- Pressure and RPM operating mode LEDs
- Throttle ready LED
- Engine RPM; shown with four daylight bright LED digits more than 1/2" high
- Check engine and stop engine warning LEDs
- Oil pressure; shown on a dual color (green/red) LED bar graph display
- Engine coolant temperature; shown on a dual color (green/red) LED bar graph display
- Transmission Temperature; shown on a dual color (green/red) LED bar graph display
- Battery voltage; shown on a dual color (green/red) LED bar graph display.

The dot-matrix message display shall show diagnostic and warning messages as they occur. It shall show monitored apparatus information, stored data, and program options when selected by the operator. All LED intensity shall be automatically adjusted for day and night time operation.

The program shall store the accumulated operating hours for the pump and engine to be displayed with the push of a button. It shall monitor inputs and support audible and visual warning alarms for the following conditions:

- High Battery Voltage
- Low Battery Voltage (Engine Off)
- Low Battery Voltage (Engine Running)

High Transmission Temperature
Low Engine Oil Pressure
High Engine Coolant Temperature
Out of Water (visual alarm only)
No Engine Response (visual alarm only).

The program features shall be accessed via push buttons located on the front of the control panel. There shall be an USB port located at the rear of the control module to upload future firmware enhancements.

Inputs to the control panel from the pump discharge and intake pressure sensors shall be electrical. The discharge pressure display shall show pressures from 0 to 600 psi. The intake pressure display shall show pressures from -30 in. Hg to 600 psi.

The governor shall operate in two control modes, pressure and RPM. No discharge pressure or engine RPM variation shall occur when switching between modes. A throttle ready LED shall light when the interlock signal is recognized. The governor shall start in pressure mode and set the engine RPM to idle. In pressure mode the governor shall automatically regulate the discharge pressure at the level set by the operator. In RPM mode the governor shall maintain the engine RPM at the level set by the operator except in the event of a discharge pressure increase. The governor shall limit a discharge pressure increase in RPM mode to a maximum of 30 psi. Other safety features shall include recognition of no water conditions with an automatic programmed response and a push button to return the engine to idle.

The pressure governor, monitoring and master pressure display shall be programmed to interface with a specific engine.

CLASS 1 INTAKE RELIEF VALVE

A Class 1 intake relief/dump valve shall be provided in the intake side of the pump to relief excess incoming pressure. The system shall be designed to self-restore to a non-relieving position when excessive pressure is no longer present. The pressure adjustment range shall be from 50 psi to 200 psi. The relief system shall be adjustable with a common type box end wrench. The pressure setting shall be preset by the apparatus manufacturer at a 125-PSI position.

The surplus water shall discharge to the atmosphere at a location away from the pump operator's position.

PUMP SHIFT MECHANISM -AIR/ELECTRIC

The pump shall be shifted from road-to-pump by means of a cab mounted air over electric pump shift switch. The switch shall have a built in positive locking mechanism to prevent accidental movement of the switch. The locking mechanism shall require operator to manually lift up on the switch lever to disengage the lock.

The switch shall have three positions. Position 1 shall be road position, position 2 shall be a neutral position and position 3 shall be pump position.

A green indicator light shall be provided in the driving compartment and shall be energized when the pump shift has been completed. This light shall be labeled "PUMP ENGAGED". When the apparatus is equipped with an automatic transmission, a green indicator light be provided in the driver compartment and at the pump operators position and shall be energized when both the pump shift has been completed and the chassis transmission is in pump gear. This light shall be labeled " OK TO PUMP". The light on the pump panel shall be positioned adjacent to, and preferably above, the throttle control mechanism and shall be marked "WARNING: DO NOT OPEN THROTTLE UNLESS LIGHT IS ON". The pump panel light shall also be energized when the chassis transmission is in the neutral position and the parking brake is engaged.

WATEROUS MODEL VPO OILLESS PRIMING SYSTEM

A Waterous model VPO oilless priming system shall be provided. The priming pump shall be an electrically driven, positive displacement vane type conforming to standards outlined in National Fire Protection Association 1901. One priming control shall both open the priming valve and start the priming motor.

The primer shall be capable of taking suction and discharging water with a lift of 10 feet in not more than 30 seconds with the pump dry and using 20 feet of appropriately sized hard suction hose with strainer. The system shall develop a vacuum of 22 inches at an altitude of up to 2,000 feet above sea level. The vacuum test shall be performed with a capped 20 foot length of hard suction hose, developing a vacuum of at least 20 inches with a drop not exceeding 10 inches in 5 minutes.

PRIMER FUSE

The primer shall be protected with a 250 amp fusible link that is designed to protect the apparatus 12 volt electrical system if the primer motor malfunctions.

MANIFOLD DRAIN VALVE

The pump shall have a manifold type drain valve assembly consisting of a stainless steel plunger in a bronze body with multiple ports. The control for the valve shall be on the left side below the left side master intake and above the side running board. The valve shall be a rotary type with large, easy to grip, handle. The valve shall be labeled PUMP DRAIN.

BLEEDER/DRAIN VALVES

A 3/4" quarter turn Class 1 model 3/4BV ball type bleeder/drain valve shall be provided for each discharge and auxiliary intake. A hose shall be connected to the bleeder/drain that will direct water below the apparatus and away from the immediate pump operator's location.

6" LEFT (DRIVER) SIDE MASTER INTAKE

A 6" master intake shall be provided on the left (driver) side of the apparatus. The intake shall have a 6" male National Standard Thread connection. The intake shall have a removable screen to prevent the entry of large objects into the pump. The screen shall be constructed of a material that will provide cathodic protection to the pump. A label shall be provided above the intake that states "DRIVER SIDE MASTER INTAKE". The label shall be color coded burgundy.

LEFT SIDE INTAKE STEAMER TYPE - NO VALVE

The left side master intake shall be steamer type and shall not have any type of valve.

LEFT SIDE MASTER INTAKE CAP - DELETE

No type of cap shall be provided on the left side master intake.

6" RIGHT (PASSENGER) SIDE MASTER INTAKE

A 6" master intake shall be provided on the right (passenger) side of the apparatus. The intake shall have a 6" male National Standard Thread connection. The intake shall have a removable screen to prevent the entry of large objects into the pump. The screen shall be constructed of a material that will provide cathodic protection to the pump. A label shall be provided above the intake that states "PASSENGER SIDE MASTER INTAKE". The label shall be color coded burgundy.

RIGHT SIDE INTAKE STEAMER TYPE - NO VALVE

The right side master intake shall be steamer type and shall not have any type of valve.

RIGHT SIDE MASTER INTAKE CAP - DELETE

No type of cap shall be provided on the right side master intake.

3/8" PUMP COOLING/BYPASS LINE

A 3/8" pump cooling/bypass line shall be provided from the pump discharge manifold directly into the tank.

This discharge shall implement a Class 1 model 38BV all brass ball type 1/4 turn valve with chro-me plated handle control located on the pump panel.

The valve control handle shall indicate the open/closed position of the valve. The handle shall have a recessed area for mounting of the identification label which shall clearly state "PUMP COOLER".

2" TANK REFILL/RECIRCULATION DISCHARGE

A 2" tank refill and pump recirculation line shall be provided from the discharge side of the pump into the tank. The control for the discharge shall be on the pump operators panel. The discharge shall be attached to the tank using flexible hose.

The water tank fill gauge shall be directly in line with this discharge control.

TANK REFILL VALVE - AKRON MANUAL CONTROL

An Akron 8600 series discharge valve(shall be utilized on tank refill line. The valve shall be manually controlled from the pump operator's position.

STAINLESS STEEL PIPING

All piping for discharges shall be stainless steel using stainless steel fittings. Victaulic couplings shall be used in all front, rear and side discharges, deck pipes, and cross lay hose beds for quick, simple removal of any pipe section or valve for maintenance.

High-pressure flexible helix wire reinforced piping with a minimum burst pressure of 1200-PSI may be used in some areas to minimize friction losses. All flexible piping couplings shall be high tensile strength stainless steel.

All piping shall be properly supported and braced to prevent movement of piping other than what is allowed by the

Victaulic couplings to compensate for apparatus flexing.

Any discharge manifolds provided on the apparatus must be fabricated of minimum Schedule 10, 304-marine grade piping, minimum of 4" in diameter. The manifold must be fabricated and warranted by the apparatus manufacturer. Use of any welded light gauge (less than Schedule 10) manifolding or plumbing, shall not be acceptable.

STAINLESS STEEL PIPING WARRANTY

The stainless steel piping shall be warranted to be free from corrosion perforation for a period of 10 years following the delivery of the apparatus.

VENTED LUG CAPS AND PLUGS

~~All intake and discharge plugs and caps~~ and plugs shall be vented lug type design-ed to relieve trapped pressure and help reduce possible operator injuries.

2 1/2" LEFT SIDE AUXILIARY INTAKE(S)

One (1) 2 1/2" auxiliary intake(s) shall be provided on the left side of the apparatus pump compartment. The intake(s) shall be controlled from the pump operator's position.

Akron 8825 suction valve(s) shall be utilized on the left side 2 1/2" intake(s) and shall be located **within the pump compartment**. The valve shall be manually controlled from the pump operator's position.

A 2 1/2" chrome plated female National Standard Thread swivel connection with screen shall be provided on the left side 2 1/2" intake(s) with a chrome plated male National Standard Thread intake plug with chrome plated chain.

A 3/4" bleeder/drain valve shall be provided on the left side auxiliary intake.

FOAM PRO 2002 CLASS A/B FOAM SYSTEM

A Foam Pro model 2002 Class A/B foam system shall be provided and properly installed on the apparatus.

The system shall be an electronic, fully automatic, variable speed direct injection discharge side foam proportioning system. The system shall be capable of handling Class A foam concentrates. The foam proportioning operation shall be based in direct measurement of water flows and pressures and remain consistent within the specified flows and pressures.

The system shall be equipped with a digital electronic control display, suitable for installation on the pump panel. Incorporated within the motor driver shall be a microprocessor that receives input from the system flowmeter, while also monitoring foam concentrate pump output, comparing values to ensure that the operators preset proportional amount of foam concentrate is injected into the discharge side of the pump.

The digital computer display shall enable the pump operator to perform the following control and operation functions for the foam proportioning system:

- A. Provide push button control of foam proportioning rates from 0.1% to 3.0% in 0.1% increments.
- B. Show current flow-per-minute of water.
- C. Show total volume of water discharged during and after foam operations are completed.
- D. Show total amount of foam concentrate consumed.
- E. Simulate flow rates for manual operation.
- F. Perform setup and diagnostic functions for the computer control microprocessor.
- G. Flash a "low concentrate" warning when the foam concentrate tanks run low.
- H. Flash a "no concentrate" warning and shut the foam concentrate pump off, preventing damage to the pump.

The foam system shall be capable of the following flow rates at given foam %:

5,000 gpm @ 0.1%
 2,500 gpm @ 0.2%
 1,000 gpm @ 0.5%
 500 gpm @ 1.0%
 166 gpm @ 3.0%

A 12 volt electric motor driven, positive displacement foam concentrate pump shall be provided. The pump capacity shall be 5.0 gpm with a maximum operating pressure up to 400 psi. The pump motor electronic driver, which is mounted to the base of the pump, shall receive signals from the computer control display, and power the 3/4 hp electric motor in a variable speed duty cycle to ensure that the correct proportion of concentrate is injected into the water stream.

A full flow check valve shall be provided in the discharge piping to prevent foam contamination in the fire pump and water tank. A 5 psi opening pressure check valve shall be provided in the concentrate line.

The A/B foam supplies shall be provided from the integral foam tanks described later in these specifications.

An installation and operation manual shall be provided for the foam system.

A RFI/EMI suppression kit shall be installed on the system.

PADDLEWHEEL FLOWMETER

A Foam Pro 3" tee mounted model 2660-0029 flowmeter kit shall be provided and shall read total flow from all foam capable discharges. A model 3430-0452 grooveless victaulic coupling kit shall be provided to allow for easy future maintenance on the system.

FOAM CAPABLE DICHARGES

The following discharges shall be foam capable:

Front bumper discharge.
Front 1.75" cross lay.
Rear 2.5" cross lay.
Left rear 2.5" discharge.

FOAM PRO CLASS A/B FOAM SYSTEM TANK SELECTOR VALVE

There shall be a model 3435-0079 manual tank selector valve shall be provided on the side pump panel. The manual valve shall have the following settings:

Class A foam
Class B foam
Off position
Flush

CLASS A "LOW FOAM IN TANK" SWITCH

There shall be a Foam Pro model 2510-0032 low tank level switch provided and vertically mounted in the wall of the foam tank. This switch shall provide "low foam concentrate" indication to the pump operator.

CLASS B "LOW FOAM IN TANK" SWITCH

There shall be a Foam Pro model 2510-0032 low tank level switch provided and vertically mounted in the wall of the foam tank. This switch shall provide "low foam concentrate" indication to the pump operator.

FOAM SYSTEM SCHEMATIC PLACARD FOR DUAL TANK SYSTEM

There shall be a Foam Pro part number 6032-0016 foam system layout placard provided and located in close proximity to the pump operator's position as required by NFPA 1901.

FOAM SYSTEM RATING PLACARD FOR FOAM PRO 2002 SYSTEM

There shall be a Foam Pro part number 6032-0021 foam system rating placard be provided in close proximity to the pump operator's position as required by NFPA 1901.

RIGHT 3" DISCHARGE(S)

One (1) 3" discharge shall be provided on the right side of the apparatus.

Akron 8630 series discharge valve(s) shall be utilized on the right side 3" discharge(s). The valve shall be manually controlled from the pump operator's position. An Akron Slo-Clozing mechanism shall be implemented in the control mechanism.

The right side 3" discharge(s) shall extend straight out of the apparatus with no type of elbow.

A 3" FNST x 5" locking Storz elbow adapter shall be provided on the right side 3" discharge(s) with a 5" blind cap and chain.

LEFT 2 1/2" DISCHARGE(S)

Two (2) 2 1/2" discharge(s) shall be provided on the left side of the apparatus.

Akron 8825 series discharge valve(s) shall be utilized on the left side 2 1/2" discharge(s). The valve shall be manually controlled from the pump operator's position.

The left side 2 1/2" discharge(s) shall have chrome discharge elbows that are cast as an integral part of the valve.

A 2 1/2" chrome plated National Standard Thread discharge cap shall be provided on the left side 2 1/2" discharge(s) with a chrome plated chain.

LEFT REAR 2 1/2" DISCHARGE

One (1) 2 1/2" discharge shall be provided on the left rear of the apparatus.

Akron 8825 series discharge valve(s) shall be utilized on the left rear 2 1/2" discharge(s). The valve shall be manually controlled from the pump operator's position.

The left rear 2 1/2" discharge(s) shall have chrome discharge elbow(s).

A 2 1/2" chrome plated National Standard Thread discharge cap shall be provided on the left rear 2 1/2" discharge(s) with a chrome plated chain.

1 3/4" CROSSLAY PRECONNECTS

Two 1 3/4" preconnected crosslays shall be provided and located above the side mount pump panel.

The crosslay compartment shall be constructed of 5052 smooth aluminum sheet material with a random brushed finish applied after fabrication. Each crosslay shall be piped using 2" piping or high pressure hose incorporating a 2" ball valve with the control on the side mount pump operators panel.

2 1/2" CROSSLAY PRECONNECT

One 2 1/2" preconnected crosslays shall be provided and located above the side mount pump panel.

The crosslay compartment shall be constructed of 5052 smooth aluminum sheet material with a random brushed finish applied after fabrication. Each crosslay shall be piped using 2 1/2" piping or high pressure hose incorporating a 2 1/2" ball valve with the control on the side mount pump operators panel.

1 - 1 3/4" CROSSLAY CAPACITY - 200 FEET

The # 1 - 1 3/4" crosslay shall have the capacity to hold 200 feet of 1 3/4" fire hose and nozzle.

2 - 1 3/4" CROSSLAY CAPACITY - 200 FEET

The # 2 - 1 3/4" crosslay shall have the capacity to hold 200 feet of 1 3/4" fire hose and nozzle.

1 - 2 1/2" CROSSLAY CAPACITY - 150 FEET

The # 1 - 2 1/2" crosslay shall have the capacity to hold 150 feet of 2 1/2" fire hose and nozzle.

Two (2) Akron 8820 series discharge valves shall be utilized to control the 1-3/4" cross lay hose beds and shall be manually controlled from the pump operator's position. The valves and piping shall be 2".

One (1) Akron 8825 series discharge valve(s) shall be utilized on the 2 1/2" crosslay discharge(s). The valve shall be manually controlled from the pump operator's position.

There shall be two (2) 2" swivel elbows with 1 1/2" Male NST hose thread connections provided on the 1-3/4" cross lay hose beds. The swivels shall be mounted in a position to prevent hose "pinching" at the hose thread connection.

There shall be one (1) 2 1/2" swivel elbow with a 2-1/2" Male NST hose thread connection provided on the 2-1/2" cross lay hose bed. The swivel shall be mounted in a position to prevent hose "pinching" at the hose thread connection.

AUTOMATIC CROSSLAY DRAIN VALVES

3/4" automatic drain valves shall be provided for all crosslays. The valves shall have an all brass body with heavy duty neoprene seal. The valve shall be normally open and shall close at 6psi using an all brass check assembly with stainless steel spring.

CROSSLAY COMPARTMENT ENDS

The crosslay compartment shall be enclosed on each end using a heavy duty webbing to prevent hose from accidentally unloading.

A nozzle strap shall be provided for each crosslay. The strap shall be designed to loop through the nozzle handle and secured to the apparatus to keep nozzle from coming out of the crosslay compartment without manually disconnecting the nozzle strap.

HINGED ALUMINUM TREADBRITE CROSSLAY COVER

An aluminum treadbrite hinged cover shall be provided to cover the crosslay compartment. The cover shall have a full length polished stainless steel hinge. A chrome plated lift handle shall be provided on each end of the cover. Rubber protection blocks shall be provided in any area where the cover may come into contact with a painted surface.

The crosslay compartment shall be left open on each end.

3" MONITOR DISCHARGE-CENTER

A 3" monitor discharge shall be provided above the pump compartment in the center. The discharge piping shall extend above the pump compartment a sufficient distance to allow use of the deck gun.

Akron 7640 discharge valve(s) shall be utilized on the monitor discharge(s). The valve shall be manually controlled from the pump operator's position with a gear actuated handwheel control with Gear Position Indicator Kit. The GPI kit shall consist of a visual indicator adjacent to the handwheel indicating the position of the valve.

CAPPED MONITOR DISCHARGE

The monitor discharge shall be capped with a female National Pipe Thread cap for future installation of monitor assembly.

1 3/4" FRONT BUMPER DISCHARGE(S)

There shall be one (1) 1 3/4" discharge(s) provided on the front of the apparatus.

BUMPER EXTENSION APRON

An aluminum treadbrite apron/gravelshield shall be provided in the area between the extended bumper and the chassis cab.

BUMPER EXTENSION HOSEWELL WITH COVER

A hosewell shall be provided in the bumper extension. The hosewell shall be designed to fit between the front bumper framerail extensions shall have a "raised lip" to help prevent water entry into the compartment. The hosewell shall be maximum size using all useable space between the framerails. An aluminum treadbrite hinged cover shall be provided to enclose the hosewell.

The hosewell shall have the maximum capacity of 100' of 1 3/4" firehose.

Passenger side.

FRONT DISCHARGE HOSE CONNECTION - CHROME SWIVEL

The hose connection for the discharge shall be located immediately adjacent to the hosewell on the driver's side. A

chrome plated or polished stainless steel swivel shall be provided. The lid for the hosewell shall be notched to allow for the hose to be preconnected.

Passenger side of bumper

Akron 8620 series discharge valve(s) shall be utilized on the front bumper 1 3/4" discharge(s). The valve shall be manually controlled from the pump operator's position. The valve and piping shall be 2".

SIDE-MOUNTED SELF CONTAINED MODULAR PUMP COMPARTMENT

A self contained modular pump compartment, designed for the integral mounting of a midship pump with side mounted pump operator's panel, shall be provided.

The modular design of the pump compartment shall allow the compartment to be fully independent of the apparatus body or cab. A minimum .75-inch gap shall be provided between the pump compartment and the apparatus body creating a flexible joint between the pump compartment assembly and the apparatus body. An extruded rubber gasket shall be installed in the gap to help prevent entry of road debris, snow, ice, etc., into the pump compartment. The modular design of the pump compartment shall allow the entire pump system, including the pump itself, to be removed from the apparatus in a one-piece, modular section, while leaving the body intact and without having to cut any sheet metal or welds.

HYPER-FLEX PUMP MOUNTING

The independent pump module assembly shall be mounted to the chassis frame rails with "*Hyper-Flex*" vibration and shock isolators using a four (4) point mounting system. Flexible neoprene pads, especially engineered for the expected weight and torsional flexing of the pump module, shall be incorporated into the system to eliminate chassis framerail flexing from transmitting harmful loads and twisting into the pump module.

STAINLESS STEEL PUMP COMPARTMENT CONSTRUCTION

The entire pump compartment shall be constructed using only 304 marine grade stainless steel fabricated sheeting with a #4 annealed and polished finish on all exterior surfaces. The pump compartment shall not require any finish painting. Due to the extreme twisting and flexing that all fire apparatus are subjected to, aluminum shall not be used in any portion of the pump compartment structural support. The use of any type of enclosed tubing that requires the use of self tapping or any other type of machine screw shall not be acceptable.

PUMP COMPARTMENT RUNNINGBOARDS

The pump compartment side runningboards shall be constructed of NFPA compliant, slip resistant aluminum treadbrite on stepping surfaces.

PUMP COMPARTMENT RIGHT SIDE ACCESS DOOR - SIDE MOUNT

A brushed stainless steel hinged access door shall be provided on the right side of the pump compartment. The doors shall have pneumatic hold open devices and push button type flush latches. The door shall be a minimum of 35" wide x 20" high.

SIDE MOUNT BRUSHED STAINLESS STEEL PUMP PANEL

All controls and instruments shall be located on the left side of the apparatus. All discharge and intake valve controls shall be located on the left side pump panel.

BRUSHED STAINLESS STEEL PUMP PANELS

The left and right side pump panels shall be constructed of 304 2B marine grade brushed stainless steel with a #4 brushed and polished finish. The panels shall be held into place with two latches on the top to allow for easy removal of the panels.

The upper section of the left side pump panel shall be constructed of the same 304 2B marine grade stainless steel. The upper section shall be vertically hinged and have a chrome plated latch to secure the panel when closed.

SIDE MOUNT PUMP PANEL LIGHTS - L.E.D.

The side mount pump panel shall be illuminated using a 36" I.L.I. track type L.E.D. light assembly.

The light shall be constructed of an unbreakable type clear poly type flexible material housed in an aluminum extrusion mounted behind a brushed stainless steel light shield provided across the top of the gauge panel.

RIGHT SIDE DISCHARGE/INTAKE PANEL LIGHTS - L.E.D.

The right side discharge and intake panels shall be illuminated using a 24" I.L.I. track type L.E.D. light assembly.

The light shall be constructed of an unbreakable type clear poly type flexible material housed in an aluminum extrusion mounted behind a brushed stainless steel light shield provided across the top of the hinged access door.

CLASS ONE PUSH/PULL VALVE CONTROL HANDLES

All valve control handles shall be Class One model 100348 push/pull type "T" handles. The "T" handles shall be chrome plated zinc and shall have a 1" x 3" recessed area for the color coded identification label. The panel mounting plate shall be chrome plated and shall be secured to the panel using four stainless steel bolts with locking type fasteners. The control rod shall be 3/4" hard coated anodized aluminum with a universal ball swivel connection. The control rod shall have a self-aligning handle to insure smooth push/pull activation.

DISCHARGE VALVE CONTROL HANDLE LAYOUT

All discharge valve control handles shall be located in one or two horizontal lines across the mid section of the pump panel. All discharge valve control handles shall be located immediately below their corresponding pressure gauge for ease of pump operation.

STAINLESS STEEL VALVE CONTROL LINKAGES

All manual valve controls shall have control rod linkages constructed of 1/2" stainless steel rod or pipe and shall

implement heavy ball swivel joints and clevises for smooth valve operation.

Plain, painted or coated control rods are not acceptable. (No Exception).

PRESSURE/VACUUM TEST PLUGS

Underwriter's test plug adapters shall be provided for connection of pump test gauges.

FRC WL2000 "TANKVISION" TANK GAUGE

A FRC model WL2000 tank gauge shall be provided on the pump panel. The gauge shall feature a 180 degree highly visible wide view LED display showing the exact level of the booster tank. The gauge shall provide a flashing warning when tank volume drops below 25% and down-chasing lights when tank is nearly or completely empty. The gauge shall implement a self-calibrating pressure sensor system to indicate the tank volume. A "probe" type of system shall not be used.

FRC WL2700 "TANKVISION" CLASS B FOAM TANK GAUGE

A FRC model WL2700 foam tank gauge shall be provided on the pump panel. The gauge shall feature a 180 degree highly visible wide view LED display showing the exact level of the booster tank. The gauge shall provide a flashing warning when tank volume drops below 25% and down-chasing lights when tank is nearly or completely empty. The gauge shall implement a self-calibrating pressure sensor system to indicate the tank volume. A "probe" type of system shall not be used.

FRC WL2600 "TANKVISION" CLASS A FOAM TANK GAUGE

A FRC model WL2600 foam tank gauge shall be provided on the pump panel. The gauge shall feature a 180 degree highly visible wide view LED display showing the exact level of the booster tank. The gauge shall provide a flashing warning when tank volume drops below 25% and down-chasing lights when tank is nearly or completely empty. The gauge shall implement a self-calibrating pressure sensor system to indicate the tank volume. A "probe" type of system shall not be used.

DISCHARGE PRESSURE GAUGES - SPAN/THUEMLING

Unless otherwise specified, each 1 1/2" or larger discharge shall have a SPAN/THUEMLING model FA fire apparatus quality pressure gauge. The gauge shall be glycerin filled (-40F to +150F), read from 0 - 400 psi, be accurate within +/- 1% and have a high impact resistant clear acrylic. The gauges shall be equipped with a KEM-X freezeproof isolator protection.

2 1/2" DIAMETER DISCHARGE PRESSURE GAUGES

The individual discharge pressure gauges shall have a 2 1/2" diameter dial.

COLOR CODED DISCHARGE PRESSURE GAUGE BEZELS

The discharge pressure gauges shall have color coded bezels matching their identification labels.

DISCHARGE PRESSURE GAUGE DIALS - WHITE FACE

The discharge pressure gauge dials shall be white with black markings. The needle shall match the color of the markings with a bright colored tip.

DISCHARGE PRESSURE GAUGES/CONTROL HANDLE ALIGNMENT

The pressure gauge shall be directly in line with the discharge control handle for the discharge that they provide pressure readout for.

For ease of operation, this requirement must be strictly adhered to. There shall be no exception to this requirement.

DISCHARGE PRESSURE GAUGE LABELING

The gauges shall be clearly labeled with permanent color coded labels.

PRESSURE GAUGE WARRANTY

The discharge pressure gauges shall have a lifetime non-yellowing and freeze warranty.

The gauge shall also be warrantied for 4 years for defects in materials and workmanship, including fluid leakage. Warranty will not cover labor costs and/or transportation costs.

PUMP PANEL AIR HORN BUTTON

A momentary push button shall be provided on the pump panel to activate airhorns.

IDENTIFICATION LABELS FOR PUMP PANEL

Innovative Controls verbiage label bezels shall be installed. The bezel assemblies will be used to identify apparatus components. These labels shall be designed and manufactured to withstand the specified apparatus service environment and shall be backed by a warranty equal to that of the exterior paint and finish. The verbiage label bezel assemblies shall include a chrome-plated panel-mount bezel with durable easy-to-read UV resistant polycarbonate inserts featuring the specified verbiage and color coding. These UV resistant polycarbonate verbiage and color inserts shall be sub-surface screen printed to eliminate the possibility of wear and protect the inks from fading. Both the insert labels and bezel shall be backed with 3M permanent adhesive (200MP), which meets UL969 and NFPA standards

AIR DISCHARGE CONNECTION

A quick release air discharge female connector shall be installed on the pump panel. The air discharge connector shall be compatible with either a Milton 787, Parker Hannifin B13 or Meyers 54-410 connector.

BOOSTER TANK- UNITED PLASTIC FABRICATING, INC.

The tank shall have a LIFETIME warranty provided by United Plastic Fabricating, Inc.

The tank shall be constructed of 1/2" thick PT2E polypropylene sheet stock. This material shall be non-corrosive stress relieved thermo-plastic, natural in color and U.V. stabilized for maximum protection. The booster tank shall be of a specific configuration and is so designed to be completely independent of the body and compartments. All joints and seams shall be nitrogen welded and tested for maximum strength and integrity. The top of the booster tank is fitted with removable lifting eyes designed with a 3 to 1 safety factor to facilitate easy removal.

The transverse swash partitions shall be manufactured of 3/8" PT2E polypropylene material. The longitudinal swash partitions shall be constructed of 3/8" PT2E polypropylene and extend through the cover to allow for positive welding and maximum integrity. All partitions shall be equipped with vent and air holes to permit movement of air and water between compartments. The partitions shall be designed to provide maximum water flow. All swash partitions shall interlock with one another and are welded to each other as well as to the walls of the tank.

The tank cover shall be constructed of 1/2" thick PT2E polypropylene, natural in color, stress relieved, UV stabilized material and shall incorporate a three piece locking design which will allow for individual removal of each section of necessary. The tank cover shall be recessed 3/8" from the top of the tank and shall be welded to both sides and longitudinal partitions of maximum integrity. Each of the covers shall have hold downs consisting of 2" polypropylene dowels spaced a maximum of 30" apart. These dowels shall extend through the covers and will assist in keeping the covers rigid under fast filling conditions. A minimum of two lifting dowels shall be drilled and tapped to accommodate the lifting eyes.

The sump shall be constructed of 1/2" PT2E polypropylene. The sump shall have a 3" NPT threaded outlet on the bottom for a drain plug. An anti-swirl plate shall be located approximately 2 1/2" above the sump.

The tank cradle assembly shall be designed to provide support to the tank. The assembly shall be approved by the manufacturer of the tank.

BOOSTER TANK CAPACITY 750 GALLONS

The poly booster tank shall have a capacity of 750 U.S. Gallons.

BOOSTER TANK FILL TOWER - LEFT SIDE FRONT

The tank shall have a combination vent and manual fill tower. The fill tower shall be constructed of 1/2" polypropylene and shall be a minimum dimension of **10" x 10"** outer dimension. The tower shall be located in the left front corner of the hosebed. The tower shall have a 1/4" thick removable polypropylene screen and polypropylene hinged type cover.

4" TANK OVERFLOW

A 4" diameter tank vent/overflow shall be provided and integrated into the tank. The piping shall be a minimum of schedule 40 polypropylene that is designed to run through the tank and shall be piped behind the rear wheels to maximize traction.

1" TANK SUMP DRAIN

A 1" drain shall be provided in the bottom of the tank sump to fully drain the tank. The drain shall use 1" stainless steel

pipng with a 1" valve. The control for the valve shall be remoted to the drivers side of the apparatus just under and behind the side rubrail. The drain control handle shall be labeled "TANK DRAIN".

10 GALLON CLASS A FOAM TANK

A 10 gallon Class A foam tank shall be provided. The tank shall have all connections necessary to connect to the foam system and shall also have a 1/4 turn drain valve with hose attached to allow the tank to be drained.

The tank shall have a 8"x 8" fill tower with hinged type lid with latch. A vent shall be provided in the lid.

A label shall be provided on the lid that reads "CLASS A FOAM TANK FILL" and "WARNING: DO NOT MIX BRANDS AND TYPES OF FOAM".

7 x 10 lid

CLASS A FOAM TANK/BOOSTER TANK INTEGRATION

The class A foam tank shall be integrated into the apparatus booster tank. The A foam tank shall not be separate from the booster tank.

50 GALLON CLASS B FOAM TANK

A 50 gallon Class B foam tank shall be provided. The tank shall have all connections necessary to connect to the foam system and shall also have a 1/4 turn drain valve with hose attached to allow the tank to be drained.

The tank shall have a 8" x 8" fill tower with hinged type lid with latch. A vent shall be provided in the lid.

A label shall be provided on the lid that reads "CLASS B FOAM TANK FILL" and "WARNING:DO NOT MIX BRANDS AND TYPES OF FOAM".

7 x 10 lid

CLASS B FOAM TANK/BOOSTER TANK INTEGRATION

The class B foam tank shall be integrated into the apparatus booster tank. The B foam tank shall not be separate from the booster tank.

3" TANK TO PUMP

A 3" tank to pump line shall be provided between the tank and the pump. The tank valve shall be an Akron tank to pump valve with control mounted on the pump operator's panel.

The piping and valve arrangement shall be capable of flowing a minimum of 500 U.S. gallons per minute to the pump. This flow must be maintained for 80% of the certified tank capacity with the apparatus positioned on level ground.

An integral built in check assembly shall be provided on the pump. The check shall be designed to be an internal part of the pump thus allowing full opening and maximum flow to the pump. The check valve shall operate and shall prevent unintentional back filling of the tank through the tank to pump line. Connection from the valve to the tank shall be made by using a non- collapsible flexible rubber hose.

TANK CRADLE SUB-STRUCTURE - HOT DIPPED GLAVANIZED

The tank cradle substructure shall be constructed of high strength structural steel. The tank cradle substructure shall be designed to provide support to the booster tank. The design of the cradle shall be approved by the tank manufacturer. Approval of the design shall be provided on request by the purchaser.

The entire tank cradle sub-structure shall be framed and jig welded together to insure a truly square assembly. The substructure shall be fastened to the chassis rails so that it may be easily removed from the chassis for repair, replacement, or mounting to a new chassis.

After complete assembly of the tank cradle sub-structure, the entire assembly shall be hot dipped galvanized for superior corrosion protection.

Due to the extreme duty that this apparatus will experience during its intended service life and to prevent rusting and corrosion from shortening the service life of this apparatus, sub frames fabricated of painted/undercoated steel or aluminum tubing shall not be acceptable.

REAR SUPPORT STRUCTURE - HOT DIPPED GALVANIZED

The apparatus body substructure shall be constructed of high strength structural steel.

The substructure shall be designed to provide integral support of the apparatus body, rear step, and the tank mounting cradle system. The entire sub-frame shall be framed and jig welded together to insure a truly square sub-frame assembly. The substructure shall be fastened to the chassis rails so that the apparatus body may be easily removed from the chassis for repair, replacement, or mounting to a new chassis.

No holes shall be drilled into the top or bottom flange of the chassis frame rails. The substructure shall be designed to allow for a 22"-24" side running board/rear step height when the apparatus is on level ground. All fasteners used to secure the substructure to the chassis frame rails shall be hardened steel with locking type nuts.

After complete assembly of the tank cradle sub-structure, the entire assembly shall be hot dipped galvanized for superior corrosion protection.

Due to the extreme duty that this apparatus will experience during its intended service life and to prevent rusting and corrosion from shortening the service life of this apparatus, sub frames fabricated of painted/undercoated steel or aluminum tubing shall not be acceptable.

20 YEAR TANK CRADLE STRUCTURAL WARRANTY

The tank cradle shall have a 20 year structural warranty. NO EXCEPTIONS.

20 YEAR TANK CRADLE CORROSION WARRANTY

The tank cradle shall have a warranty covering structural failure due to corrosion perforation. This warranty shall be in

effect for 20 years after delivery of the apparatus to the customer. NO EXCEPTIONS

20 YEAR REAR STRUCTURAL SUPPORT WARRANTY

The tank cradle shall have a warranty covering structural failure due to corrosion perforation. This warranty shall be in effect for 20 years after delivery of the apparatus to the customer. NO EXCEPTIONS

The rear structural support shall have a 20 year structural warranty. NO EXCEPTIONS.

20 YEAR REAR STRUCTURAL SUPPORT CORROSION WARRANTY

The rear structural support shall have a warranty covering structural failure due to corrosion perforation. This warranty shall be in effect for 20 years after delivery of the apparatus to the customer. NO EXCEPTIONS

***HYPER-FLEX* BODY MOUNTING**

The body module assembly shall be mounted to the chassis frame rails with "*Hyper-Flex*" vibration and shock isolators using a forward mounting system. Flexible neoprene pads, or U-springs especially developed for the expected weight and torsional flexing of the apparatus body, shall be incorporated into the system to eliminate chassis frametail flexing from transmitting harmful loads and twisting into the body.

STAINLESS STEEL APPARATUS BODY CONSTRUCTION

The entire apparatus body shall be formed by shearing and bending fire apparatus quality stainless steel sheet metal. Metal tubular structures or extrusions shall not be used in the construction of the apparatus body. All edges of the sheared metal shall be sanded to remove any sharp shear edges prior to bending the metal. After shearing and bending, the body shall be assembled on a jig table that is designed to hold all apparatus body parts securely in place to insure an accurately built apparatus body. After the fabricated body parts are secured on the jig, the body shall be welded together using a wire welder to insure proper weld penetration.

The entire apparatus body shall be welded together using only unexposed welding methods. No welds shall be visible on the exterior of the apparatus body. All welds on the exterior of the body shall be ground flush and filled with automotive body filler. Metal or rubber trims shall not be used to hide welds or seams.

COMPARTMENT FLOORS

All compartment floors shall be constructed of fire apparatus quality stainless sheet steel. The floors shall have a minimum 1" upward flange on the rear wall of the compartment to prevent any possible moisture accumulation in this area. A drainport shall be provided in each rear corner of the compartment to allow any water that may collect on the floor to drain out. The sides of the floor must be welded the full depth of the compartment to eliminate moisture accumulation. These welds must be placed on the bottom exterior of the compartment so that they are not visible on the interior of the compartment. The front edge of the compartment shall consist of a minimum of four bends to provide additional strength in the compartment floor and shall then form the lower door jamb.

All compartment floors shall be sweep out design. This shall include the lower side compartments, any upper compartments, and shall also include the rear face compartment. Any exception to this requirement will cause immediate rejection of bid.

COMPARTMENT REAR WALLS/BODY SIDES

The compartment rear walls and the apparatus body sides shall be constructed of fire apparatus quality stainless sheet steel. The corners shall be one piece construction from top to bottom and from the inner body panel to the outer face of the compartment to provide maximum strength.

Corners using structural support channels or extrusions that require two or more pieces to be welded together shall not be implemented.

SIDE/REAR COMPARTMENT TOPS AND CEILINGS

The side and rear compartment tops and ceilings shall be constructed of fire apparatus quality stainless sheet steel. The ceiling of the lower side compartments in the extended depth section shall also be constructed of this material.

FENDERWELLS

The left and right side rear fenderwells shall be constructed of fire apparatus quality stainless steel sheet steel. A 1" gap shall be provided on the bottom of each side of the circular liner to allow drainage of water and for easy cleanout. Sufficient clearance shall be provided for tire chains. Before the booster tank is installed, the fenderwells shall be thoroughly cleaned, all seams sealed, and automotive undercoated to prevent corrosion in the fenderwell area.

REMOVABLE INNER FENDER LINER

The fenderwells shall be radius cut and shall have a circular inner liner to prevent rust pockets and for ease of cleaning. The inner liner shall be constructed of high impact polyethylene material and shall be fully removable for chassis suspension access.

STAINLESS STEEL FENDERETTE

The fenderwells shall be trimmed with a polished stainless steel fenderette. The stainless steel fenderette shall be secured into place with stainless steel fasteners and shall be easily removable for replacement. A black rubber fender welting shall be provided between the fenderette and the inner liner surface. The fenderettes shall protrude from the apparatus body a maximum of 1".

The fenderette must be bolted into place and removable for replacement.

100" BODY WIDTH

The apparatus body shall be 100" wide from side to side measuring from the rub rail mounting surface.

COMPARTMENT VENTILATION

Each compartment shall have a removable ventilation plate to allow for air movement in the compartment. A cleanable filter material shall be provided behind the plate.

FRONT COMPARTMENT FACE OVERLAY

The vertical surface of the front compartment face shall be overlaid with fire apparatus quality aluminum treadbrite. The overlay shall be one piece construction from top to bottom. The aluminum treadbrite shall be an overlay only and shall not form any structural part of the apparatus. It shall be fitted on the apparatus body with all holes drilled prior to painting. **Aluminum treadbrite that is welded or bolted to the front face of the apparatus and masked off during the paint process is not acceptable.** The back side of the aluminum treadbrite shall be fully covered with a high temperature polyurethane based sealer to prevent dissimilar metal oxidation.

COMPARTMENT TOP OVERLAY

The compartment tops shall be overlaid with fire apparatus quality aluminum treadbrite. The aluminum treadbrite shall be an overlay only and shall not form any structural part of the apparatus. It shall be fitted on the apparatus body with all holes drilled prior to painting. **Aluminum treadbrite that is welded or bolted to the top of the compartments and masked off during the paint process is not acceptable.** The back side of the aluminum treadbrite shall be fully covered with a high temperature polyurethane based sealer to prevent dissimilar metal oxidation.

ROLL UP COMPARTMENT DOORS

For all compartments requiring roll up doors:

The doors shall be constructed of aluminum extrusion slats. All doors shall be fitted with a flexible, watertight seal between the slats at pivoting joints. Each slat shall be individually removable for replacement in the event of damage.

The endcaps and rollers shall be manufactured of type-6 nylon. The doors shall have a pre-tension operator in a sealed alloy drum that is positioned in the upper front portion of the compartment, providing maximum clearance and head room in the upper portion of the compartment.

Each door shall have a full door-width lift bar latching handle which shall be spring loaded with two (2) surface mounted latch points, mounted one (1) on each end. The door shall be reinforced and the latch point with a "ledge" surface above the lift bar designed to provide a "push" surface when closing.

Each door shall be provided with seals made of extruded neoprene which are shaped to readily shed water. The side seals are mounted in a special extrusion forward of the curtain track. Drip rails shall be provided above all doors.

STAINLESS STEEL COATED FASTENERS

All fasteners used in the finish construction of the apparatus body shall be marine grade stainless steel. Fasteners that pass through an aluminum panel shall be Magna-Gard, or equal, coated to help prevent dissimilar metal reaction and corrosion. As the Magna-Gard, or equal, coating is a "baked on" type coating providing for excellent adhesion to the fastener, spray on type coatings may be used in conjunction with the Magna-Gard, or equal, but not in place of it. As dissimilar metal corrosion is a common occurrence on all apparatus and the Magna-Gard (or similar "baked on" finishes) coated fasteners are commercially available to all manufacturer's and is not a proprietary product, there shall be no exception to this requirement.

DRIVER'S SIDE COMPARTMENT IN FRONT OF THE REAR WHEELS

A compartment shall be provided in front of the rear wheels. The compartment shall be 64" high x 48.75" wide x 26"

usable depth **the full height of the compartment**. The compartment shall have a roll up door with an opening 58" high x 42" wide.

The roll up door shall have a brushed satin finish.

DRIVER'S SIDE ABOVE WHEEL COMPARTMENT

A compartment shall be provided above the rear wheels. The compartment shall be 33" high x 62" wide x 26" usable depth. The compartment shall have roll up door with a door opening 30" high x 54" wide.

The roll up door shall have a brushed satin finish.

DRIVER'S SIDE COMPARTMENT BEHIND REAR WHEELS

A compartment shall be provided behind the rear wheels. The compartment shall be 64" high x 65" wide x 26" usable depth the full height of the compartment. The compartment shall have a roll up door with an opening 58" high x 63" wide.

The roll up door shall have a brushed satin finish.

PASSENGER'S SIDE COMPARTMENT IN FRONT OF THE REAR WHEELS

A compartment shall be provided in front of the rear wheels. The compartment shall be 64" high x 48.75" wide x 26" usable depth **the full height of the compartment**. The compartment shall have a roll up door with an opening 58" high x 42" wide.

The roll up door shall have a brushed satin finish.

PASSENGER'S SIDE ABOVE WHEEL COMPARTMENT

A compartment shall be provided above the rear wheels. The compartment shall be 33" high x 62" wide x 26" usable depth. The compartment shall have a roll up door with a door opening 30" high x 54" wide.

The roll up door shall have a brushed satin finish.

PASSENGER'S SIDE COMPARTMENT BEHIND REAR WHEELS

A compartment shall be provided behind the rear wheels. The compartment shall be 64" high x 65" wide x 26" usable depth. The compartment shall have a roll up door with an opening 58" high x 61" wide.

The roll up door shall have a brushed satin finish.

REAR FACE COMPARTMENT

A rear compartment shall be provided on the apparatus just ahead of the rear step. The compartment shall be a minimum of 30" useable depth. The compartment shall have maximum height with selected apparatus options.

REAR FACE COMPARTMENT DOOR - ROLL UP

The rear compartment shall have a roll up door.

DRIVER'S SIDE REAR COMPARTMENT - PARTITIONED

The driver's side compartment behind the rear wheels shall have a removable panel separating it from the rear facing compartment (non-transverse)

PASSENGER'S SIDE REAR COMPARTMENT - PARTITIONED

The passenger's side compartment behind the rear wheels shall have a removable panel separating it from the rear facing compartment (non-transverse)

UPPER DOOR JAMB EXTENSIONS

The upper door jamb of the side compartments shall be extended upward on both sides providing a mounting area for side upper warning lights, scenelighting, large scale lettering, etc. The side shall be extended up to the same height as the side walls of the hosebed area.

LEFT SIDE COFFIN COMPARTMENTS

Coffin compartments shall be provided above the side compartments on the left side. The length of the compartments shall be the same as the length of the side compartments. The width shall be the same as the upper depth of the side access compartments. Maximum depth will be provided based on design of the apparatus.

Two aluminum treadbrite access doors shall be provided for access. The doors shall have a 1" raised lip to keep water from running into the compartment. The doors shall be fully weatherstripped and shall have dual flush mounted latches. A single light shall be provided and located under the door jamb between the two access doors. Floor tiles shall be provided on the floor of the compartment in any area that does not have permanently mounted equipment.

RIGHT SIDE COFFIN COMPARTMENTS

Coffin compartments shall be provided above the side compartments on the right side. The length of the compartments shall be the same as the length of the side compartments. The width shall be the same as the upper depth of the side access compartments. Maximum depth will be provided based on design of the apparatus.

Two aluminum treadbrite access doors shall be provided for access. The doors shall have a 1" raised lip to keep water from running into the compartment. The doors shall be fully weatherstripped and shall have dual flush mounted latches. A single light shall be provided and located under the door jamb between the two access doors. Floor tiles shall be provided on the floor of the compartment in any area that does not have permanently mounted equipment.

18" REAR TAILBOARD STEP

A 18" depth x 66" width rear tailboard step shall be provided on the apparatus between the side compartments. The step shall be spaced from the rear face of the apparatus body a minimum of 3/4" for easy wash out.

RECESSED STEP BODY DESIGN

The rear step of the apparatus shall be 'recessed' into the rear of the body to provide additional side compartmentation.

A 'flatback' or beavertail 'fin' design is not acceptable.

REAR STEP MATERIAL - NFPA ALUMINUM TREADBRITE

The rear step shall be constructed of NFPA complaint bright finish aluminum treadbrite.

RUBRAILS - BRITE ANNODIZED ALUMINUM

Extruded aluminum rubrails shall be provided on the apparatus body sides. The rubrails shall have a brite finish with annodized coating to protect the finish. The rubrails shall provide an integrated mounting location for the L.E.D. side marker lights as well as the reflectors. The rubrails shall be spaced from the apparatus body a minimum of 1/4" with poly spacers.

The rubrails must be bolted on to the apparatus body to allow easy replacement if damaged. Rubrails that are permanently fastened to the apparatus body by welding or any other permanent method will not be acceptable. **NO EXCEPTION WILL BE ALLOWED TO THIS REQUIREMENT.**

RUBRAIL ENDS

The rubrail ends shall be 'capped' with a high impact resistant black EPDM contoured block.

HOSEBED FLOORING

The floor of the hose bed shall be constructed of fiber reinforced material. The flooring shall be fabricated of "T" beam pultrusions in parallel connected with cross slats that are first mechanically bonded and then epoxied, forming a large sheet.

The top portion of each "T" cross section shall measure 1-5/8" wide and 3/16" thick with beaded ends. The vertical portion shall be 3/16" thick, beading out at the bottom to a thickness of 1/2" and tall enough to result in an overall height of 1". The "T" sections shall be spaced 3/4" apart to allow for drainage and ventilation.

Each "T" beam shall be constructed utilizing a core of 250,000 continuous glass fiber strands that are high in resistance to tension, compression and bending. An outer sheath consisting of a continuous strand mat to prevent lineal splitting and shipping shall surround the core. The sheath shall also serve to draw the protective resin to the bar surface. Both reinforcements shall be pulled through an isophthalic polyester resin, treated with antimony trioxide for fire resistance, to form a solid length.

The flooring shall then be protected with a polyurethane coating to screen out ultraviolet rays. This gray coating shall be baked on.

68" WIDE HOSEBED

The hosebed shall be 68" wide from side to side.

HOSEBED CAPACITY

The hosebed shall have the capacity to carry the following hoseload:

HOSEBED DIVIDER(S)

There shall be one (1) hosebed divider(s) in the main hosebed to partition off hose. The divider(s) shall be constructed of 3/16" thick aluminum plate material. The lower edge of the divider(s) have a two inch 90 degree bend toward one side and a 2" x 2" x 3/16" aluminum angle welded to the other side.

The divider(s) shall be adjustable by sliding in tracks which are recessed flush into the hosebed flooring, one on front and one on rear. The divider shall be held in place by two bolts on each end of the divider(s).

The upper rear corner of the divider(s) shall have a minimum of a 3" radius cut.

HOSEBED COVER WITH VELCRO FASTENERS

A heavy duty vinyl coated nylon hosebed cover shall be provided to protect the hoseload from the weather. The cover shall extend from the front of the hosebed to the rear and then extend downward to cover the exposed rear of the bed and from the left side to the right side of the hosebed.

The cover shall have a double reinforced area where the cover comes into contact with the upper rear corners of the hosebed dividers. The cover shall be secured to the apparatus using velcro on the sides and lift dots on front.

The rear of the cover shall be secured to the apparatus using positive mechanical latches.

BULKHEAD HOSEBED DIVIDER/DUNNAGE COMPARTMENT

A bulkhead divider shall be provided in the front area of the hosebed separating the hosebed from the tank fill tower(s). The balance of this area that is not occupied by fill tower or other mounted equipment shall be used as a dunnage compartment.

HOSEBED COVER - RED

The hosebed cover shall be red.

LADDER COMPARTMENT ABOVE TANK/BELOW HOSEBED

A compartment shall be provided above the tank and below the hosebed for storing ladders and pike poles. A full width drop down hinged aluminum treadbrite door shall be provided on the rear. The pike pole storage shall be to the left of the ladder area.

The compartment shall have a single 5" diameter Signal Stat model 77-570 light mounted on the left wall of the compartment with automatic door switch. The light shall be incorporated into the Door Ajar warning system in the cab.

Ladders

All ladders shall have individual 1/8" aluminum slides, lined with Rodex slip blocks, to allow individual removal of each ladder without disturbing any other ladder.

Pike Poles

Storage for two straight handle pike poles shall be provided in the compartment.

ILI strip light

DUO-SAFETY 24' 2 SECTION ALUMINUM LADDER

~~There shall be one (1) Duo-Safety model 900A 24' NFPA compliant, 2-section aluminum extension ladder provided and mounted by the manufacturer.~~

DUO-SAFETY 14' ALUMINUM ROOF LADDER

~~There shall be one (1) Duo-Safety model 775A, 14' NFPA compliant aluminum roof ladder with folding hooks provided and mounted by the manufacturer.~~

DUO-SAFETY 10' ALUMINUM FOLDING ATTIC LADDER

~~There shall be one (1) Duo-Safety model 585A, 10' NFPA compliant aluminum folding attic ladder provided and mounted by the manufacturer.~~

HARD SUCTION COMPARTMENT IN HOSEBED

~~A movable compartment shall be provided in the hose bed for two (2) 10' lengths of hard suction hose stacked one above the other. The hose bed height shall be a minimum of 18" from the hose bed floor to the top of the hose bed to accommodate the suction hose mounts. The rack shall be mounted to the hose bed divider brackets and shall be fully adjustable.~~

The hard suction mounts shall be constructed of minimum 1/8" smooth aluminum with brushed finish. The upper and lower compartments shall be 9" x 9" x the depth of the hose bed. The upper compartment shall be open on top. Both compartments shall be open to the rear with no door.

HARD SUCTION HOSE - FIRE DEPARTMENT PROVIDED

~~The hard suction hose shall be provided by the Fire Department.~~ The Department shall provide the following hose:

6" x 10" setup

COMPARTMENT SHELF TRACKS - ALUMINUM

Nine (9) sets consisting of four (4) heavy-duty aluminum Uni-Strut tracks shall be provided in specified compartments, two for each end of shelf. The tracks shall not be welded to the apparatus body. The Uni-strut tracks shall allow the shelving to be positioned at any location in the compartment by simply loosening a bolt on each end of the shelf, pushing inward on the bolt, and sliding the shelf to the desired location.

COMPARTMENT SHELVING-SIDE COMPARTMENTS

There shall be Two (2) shelves provided, constructed of .125" smooth aluminum with a brushed finish on the outer edge. The shelves shall have a 2" upward bend on the front and rear edges.

DAW and PAW above the rollout trays.

DRIVER WHEEL WELL ROLL-OUT DRAWER

There shall be one roll-out drawer installed above the rear wheels on the driver's side of the body in the wheel well area. The drawer shall be approximately 23.5" deep by 56" wide and have a 300 lb. capacity.

PASSENGER WHEEL WELL ROLL-OUT DRAWER

There shall be one roll-out drawer installed above the rear wheels on the passenger's side of the body in the wheel well area. The drawer shall be approximately 23.5" deep by 56" wide and have a 300 lb. capacity.

DRIVER FRONT WHEELWELL COMPARTMENT

There shall be a compartment located in the driver's side wheel well ahead of the rear axle to hold three (3) SCBA bottles with maximum dimensions of 6.75" diameter x 24.50" long.

A 1" wide loop of high visibility yellow webbing shall be installed in each compartment for each cylinder to be stored in the compartment. The loop shall be designed to loop around the cylinder valve and prevent the cylinder from sliding out of the compartment if the door is not latched or fails.

PASSENGER FRONT WHEELWELL COMPARTMENT

There shall be a compartment located in the passenger's side wheel well ahead of the rear axle to hold three (3) SCBA bottles with maximum dimensions of 6.75" diameter x 24.50" long.

A 1" wide loop of high visibility yellow webbing shall be installed in each compartment for each cylinder to be stored in the compartment. The loop shall be designed to loop around the cylinder valve and prevent the cylinder from sliding out of the compartment if the door is not latched or fails.

PASSENGER REAR WHEELWELL COMPARTMENT

There shall be a compartment located in the passenger's side wheel well behind the rear axle to hold one set of Zico folding wheel chocks

A safety chain shall be provided across the door opening. The safety chain shall be designed to prevent the chocks from sliding out of the compartment if the door is not latched or fails.

DRIVER REAR WHEELWELL COMPARTMENT

There shall be a compartment located in the driver's side wheel well behind the rear axle to hold up to 20 lbs. Of floor dry material. A chute will be installed at the bottom of the compartment to dispense the material.

The fuel fill shall be located behind the door.

WHEELWELL COMPARTMENT DOORS – POLISHED STAINLESS

Mirror finish polished stainless steel access doors shall be provided on all rear wheel well compartments.

WHEELWELL COMPARTMENT "DOOR AJAR" SYSTEM

All wheel well compartments shall be connected into the door ajar system on the apparatus.

POLY TOOL BINS

Five (5) poly tool bins shall be provided. The bins shall have slotted handles on each end.

10" x 22" (Shipped loose with truck)

ROLL OUT TRAY

There shall be two (2) roll out tray(s) provided. The tray shall be constructed of 3/16" aluminum. The tray shall have a 2" upward bent lip on all four sides of the tray.

Grant, or equal, 250 lb. total capacity heavy duty ball bearing type telescoping slides shall be provided.

A positive latching mechanism shall be provided to hold the tray in either the fully open or fully closed position.

over the wheel compartments, to be used like rollout drawers

FOLDING ACCESS STEPS

Southpark model LES46ZC chrome plated folding access steps shall be provided in areas listed in these specifications. All access steps provided on the apparatus shall support a minimum static load of 500 lbs. and be mounted in accordance to recommended mounting procedures as outlined by NFPA 1901. The steps shall be **minimum** of 6.5" wide x 6.5" depth. The steps shall be attached to the apparatus using stainless steel bolts with locking type nuts.

RIGHT FRONT COMPARTMENT ACCESS STEPS

Three NFPA compliant folding steps shall be provided on the right side front compartment face.

LEFT FRONT COMPARTMENT ACCESS STEPS

Three NFPA compliant folding steps shall be provided on the left side front compartment face.

RIGHT REAR ACCESS STEPS

Three NFPA compliant folding steps shall be provided on the rear of the apparatus on the right side.

LEFT REAR ACCESS STEPS

Three NFPA compliant folding steps shall be provided on the rear of the apparatus on the left side.

NFPA KNURLED FINSH HANDRAILS

All handrails shall be 1 1/4" diameter extruded aluminum "knurled finish" with chrome plated stanchions. Rubber gaskets shall be provided between the stanchions and any painted surfaces. The rails shall comply with NFPA 1901.

LEFT REAR VERTICAL HAND RAILS

One NFPA compliant handrail shall be provided on the left rear of the apparatus for boarding the rear step and using the left rear hosebed access steps.

RIGHT REAR VERTICAL HAND RAILS

One NFPA compliant handrail shall be provided on the right rear of the apparatus for boarding the rear step and using the right rear hosebed access steps.

RIGHT FRONT GRAB RAIL

A 12" NFPA compliant horizontal handrail shall be provided on on the right front of the apparatus towards the front of the hosebed.

LEFT FRONT GRAB RAIL

A 12" NFPA compliant horizontal handrail shall be provided on on the left front of the apparatus towards the front of the hosebed.

RIGHT REAR GRAB RAIL

A 12" NFPA compliant horizontal handrail shall be provided on on the right rear of the apparatus towards the rear of the hosebed.

LEFT REAR GRAB RAIL

A 12" NFPA compliant horizontal handrail shall be provided on on the left rear of the apparatus towards the rear of the hosebed.

48" INTERMEDIATE REAR HORIZONTAL HAND RAIL

A 48" intermediate horizontal handrail shall be provided on the rear of the apparatus.

NFPA 1901 CERTIFIED 12 VOLT ELECTRICAL SYSTEM

The 12-volt apparatus body electrical system shall be provided and shall be in compliance with NFPA 1901 testing and certification procedures as follows:

NFPA MINIMUM ELECTRICAL LOAD DEFINITION

The NFPA 1901 defined minimum electrical load shall consist of the total amperage required to si-multaneously operate the following in a stationary mode:

1. Propulsion engine and transmission.
2. The clearance and marker lights.
3. Communication equipment. 5 amp default.
4. Illumination of all walking surfaces, the ground at all egress points, control and instrumentation panels and 50% of total compartment lighting.
5. Minimum warning lights required for "blocking right of way" mode.
6. The current to simultaneously operate and fire pump and all specified electrical devices.
7. Anything defined by the purchaser, in the advertised specifications, to be critical to the mission of the apparatus.

RESERVE CAPACITY TEST

The first electrical test to be performed will be the **Reserve Capacity Test**. All items listed in NFPA Minimum Load Definition shall be activated with the engine shut off. After 10 minutes of operation, the items 1-7 shall be deactivated. After deactivation, the battery system shall have ample reserve to start the engine.

ALTERNATOR PERFORMANCE TEST AT IDLE

The second electrical test to be performed shall be **Alternator Performance Test at Full Load**. All electrical loads shall be activated with the engine running up to the governed rpm for two hours. During the test, the system voltage shall not drop below 11.7 volts or have excessive battery discharge for more than 120 seconds. Any loads not defined in the NFPA Minimum Electrical Load may be load managed to pass test.

TEST CONDITIONS

All electrical testing shall be performed with the engine compartment at approximately 200 degrees.

12-VOLT WIRING SYSTEM

All 12-volt electrical wiring shall be SXL cross link rated to carry 125% of the maximum current for which the circuit is protected. The wire shall be of sufficient size so that voltage drop in any electrical device shall not exceed 10%. All wiring shall be color, number, and function coded with the number and function being printed every three inches along the entire length of all apparatus body wires (as required by NFPA 1901). All wiring shall be routed through heavy-duty PVC split loom, securely attached and protected against heat, oil, and physical damage. All locations where the wire passes through a body panel shall be protected with electrical grommets.

All connections shall be made using mechanical connectors and be screwed to terminal or junction box with machine screws. Wire nut, insulation displacement, or piercing connections shall not be used.

All circuits shall be provided with properly rated low voltage over current protective devices of the automatic reset type.

A removable bulkhead shall that extends from the floor to the ceiling of both side rear compartments shall be provided to protect rear wiring.

HARD-WIRED ELECTRICAL SYSTEM

The apparatus body electrical system shall incorporate a hard-wired electrical system. Any type of multiplex system will not be acceptable.

LICENSE PLATE LIGHT/BRACKET

An Arrow model 437-00-332 chrome plated license plate light shall be provided on the rear of the apparatus. The light shall function with the head light switch.

A license plate mounting bracket shall be provided that spaces the license plate away from the apparatus body.

CLEARANCE LIGHTS/REFLECTORS

All apparatus body clearance lights shall be LED style. All lower clearance lights and reflectors shall be mounted in a manner that provides protection from damage, and shall comply with FMVSS-108 regulations.

MID-MOUNTED SIDE TURN SIGNAL - L.E.D.

A mid-mounted amber LED side turn signal shall be provided in the mid section area of the apparatus on both sides. The low profile signal shall be recessed into the side rubrail for protection.

PUMP COMPARTMENT LIGHTS (2)

Two Weldon 2025 compartment lights shall be provided to illuminate the interior of the pump compartment. The lights shall function with the pump operators gauge panel lights.

ENGINE COMPARTMENT LIGHT

A Weldon model 2025 light shall be provided and mounted over the engine on the engine compartment wall. An on/off switch shall be provided on the light to activate it.

DUAL ILI - LED COMPARTMENT LIGHTING

Each apparatus body compartment shall have two ILI track type L.E.D. lights vertically mounted in the compartment. The lights shall be constructed of an unbreakable type clear poly type flexible material housed in an aluminum extrusion.

A compartment that is considered a 'full height' compartment shall each have two 48" long light sections and a 'low height' or above wheel compartment shall each have two 18" long sections.

The lights shall function automatically and independently of other compartments when the compartment door is opened. **Compartment lighting systems that are controlled by a single, dash mounted switch are not acceptable.**

COMPARTMENT LIGHT SWITCHES

Each hinged apparatus body door compartment shall have a magnetic style reed indicator switch. Each switch shall be hermetically sealed rated to 10,000,000 cycles. The reed shall be potted in the contact housing with polyurethane and the housings shall be molded fire retardant ABS plastic. The contact and magnetic housing shall snap-lock in the body material, one on the body and one in the door.

Each roll up door shall have an integral door open indicator magnet in the lift bar. If the bar is not properly closed, it shall activate the "Door Open" light in the cab.

The compartment lights shall function automatically when the door is opened. A master compartment light switch shall not be acceptable.

DOOR AJAR INDICATOR - L.E.D.

A 1" X 2" RED LED flashing light shall be provided in the cab in clear view of the driver to warn of an open compartment or personnel door.

PERIMETER/STEP LIGHTS

There shall be seven Truck-Lite model 40 underbody perimeter lights furnished and installed. The lights shall be shock mounted and have an unbreakable polycarbonate lens and housing. The light shall be sealed to help prevent moisture from entering the light. The lights shall be located one under each side of the front of the body, one under the chassis cab door (4 total) and one under the rear step to illuminate the ground around the truck. The ground lights shall be activated with the parking brake.

All runningboards, walkways and steps shall be properly illuminated to NFPA standards.

WHELEN TRI-CLUSTER TAILLIGHTS - L.E.D. - INCANDESCENT

Whelen 60R00BRR 4" x 6" LED taillights and 60A00TAR 4" x 6" LED turn signals shall be provided. The backup lights shall be 4" x 6" clear incandescent. A polished trim housing shall be provided, one each side for mounting the tail lights, turn signal lights, and backup lights.

BACKUP ALARM

A Code 3 (or equal) model DAP50 97db backup alarm shall be provided and shall automatically activate when the apparatus transmission is placed into reverse.

The backup alarm shall exceed all NFPA1901 and SAE J994 Type D requirements and testing.

EMERGENCY LIGHTING SWITCHING SYSTEM FOR CUSTOM CHASSIS

The switching system shall be provided by the fire chassis manufacturer and is further described in the chassis specifications.

ZONE A UPPER WARNING LIGHTING

The lightbar shall be provided on the chassis. Specifications for the lightbar are listed in the chassis specifications.

ZONE C UPPER WARNING LIGHTING - REAR

Two Whelen model 90R00E*R red 7" x 9" LED's shall be mounted on the upper rear area of the apparatus, one each side.

with clear lenses

ZONES B & D LOWER WARNING LIGHTING - SIDES

Zone B Right Side Lower Lighting

Three Whelen model 60R02FRR red LED lights shall be provided on the right side. One light shall be mounted as low and as far forward on the apparatus cab as possible, one shall be mounted on the mid-section, and one shall be mounted as low and as far rearward as possible on the apparatus body.

Zone D Left Side Lower Lighting

Three Whelen model 60R02FRR red LED lights shall be provided on the left side. One light shall be mounted as low and as far forward on the apparatus cab as possible, one shall be mounted on the mid-section, and one shall be mounted as low and as far rearward as possible on the apparatus body.

Red with clear lenses.

ZONE C LOWER WARNING LIGHTING - REAR

Two Whelen model 60R02FRR red LED's shall be mounted on the lower rear area of the apparatus, one each side.

red with clear lenses

UPPER ZONE B/D WARNING LIGHTING - SIDE

Two Whelen 600 Series 4" X 6" red L.E.D.'s shall be mounted on each side of the apparatus above the side compartments. A chrome bezel shall be provided around the lights.

with clear lenses

FEDERAL SIGNAL Q2B-P MECHANICAL SIREN

A Federal Signal model Q2B-P pedestal mounted chrome plated mechanical siren shall be provided and mounted on the front bumper extension. The siren shall have a maximum sound output of 123 db at 10'.

MECHANICAL SIREN ACTIVATION SWITCHES

Two floor mounted pad switches shall be provided to operate the mechanical siren, one on the right side and one on the left side.

MECHANICAL SIREN BRAKE

A siren brake push button switch shall be provided on the dash or console.

WHELEN 9E SCENELIGHTS

Four Whelen 9E Series 9" x 7" 26 degree scenelights shall be provided and mounted one on each side of the apparatus body and two on the rear. The lights shall have a chrome plate trim bezel.

12 VOLT SCENELIGHT ACTIVATION SWITCH (1)

A single switch shall be located on the cab control console to activate the 12 volt scenelight(s).

UNITY AG-6 DECK/HOSEBED LIGHTS

Two (2) Unity model AG-6 chrome plated lights shall be provided and mounted on the rear of the apparatus, one (1) each side. The lights shall be controlled by lighthouse mounted switches and shall be capable of 360-degree rotation and 90 degrees above and below horizontal tilt.

The lights shall be subjected to load management shedding to comply with NFPA 1901.

10 KW SMART POWER HYDRAULIC GENERATOR SET

A Smart Power, model HR-10, 10,000 watt hydraulic generator shall be provided. The generator is designed specifically for mounting on top of the vehicle, at the customer-specified location, but can also be easily separated into its three major components (tray, cooler/fan assembly, and reservoir) for mounting in custom applications.

The generator system shall come with a standard 5 year/1,000 hour fully transferable warranty from the manufacturer. The unit shall come equipped with: generator tray assembly (which includes the generator, hydraulic motor, cooler, fan, electronics package, 10 micron spin-on fluid filter and reservoir), axial piston hydraulic pump with pressure compensated control, and Command and Control Center (CCC) display with all required wiring harnesses. The CCC shall be an interactive operator control center, equipped with smart touch solid state buttons, with displays for voltage, frequency, amperage, hour meter, service reminders, operator warnings, system faults and diagnostics. Standard electronics package shall include smart start engagement to reduce mechanical stress, precise voltage and frequency control, cold start system, automatic load and temperature compensation, integrated diagnostics system, and other automated control features to protect system, vehicle and operator.

The generator tray assembly shall be delivered with the cooler/fan assembly mounted such that the hot air is exhausted straight up, through an NFPA approved walking grate.

The body of the generator tray assembly (including reservoir) shall be 32" long x 13.5" wide x 17" high, weighing approximately 185 pounds. The hydraulic pump shall be driven by a chassis transmission mounted power take off (PTO).

Ratings and Capacity

Rating:	12,000 watts peak 9,000 watts continuous
Volts:	120/240 volts
Phase:	Single, 4 wire
Frequency:	60 Hz
Amperage:	83 amps @ 120 volts or 42 amps @ 240 volts
Engine speed at engagement:	Standard soft start feature allows for any

speed engagement

Operation range: 880 to 3120 RPM

Testing

The generator shall be tested in accordance with all current N.F.P.A. 1901 standards.

Notes

*All ratings and capacities shall be derived utilizing current NFPA 1901 test parameters.

HYDRAULIC GENERATOR START SWITCH – CAB CONSOLE

The hydraulic generator shall be located on the cab console. There shall be an indicator light on the cab console that illuminates when the generator is running.

HYDRAULIC GENERATOR PTO - "HOT SHIFT" TYPE

The generator shall be powered by a Chelsea or Muncie "Hot Shift" Power Take Off. A lighted and guarded switch shall be provided on the control console that electrically engages/disengages the power take off.

HYDRAULIC GENERATOR MOUNTING

The generator shall be mounted with adequate ventilation to prevent overheating. The generator shall be mounted in the forward area of the hosebed, properly protected. A front hosebed bulkhead shall also be provided.

GROUNDING

Grounding shall be in accordance with Section 250-6 "Portable and Vehicle Mounted Generators" of the NEC. Ungrounded systems shall not be used. Only stranded or braided copper conductors shall be used for grounding and bonding. An equipment grounding means shall be provided in accordance with Section 250-91 (Grounding Conductor Material) of the NEC. The grounded current carrying conductor (neutral) shall be insulated from the equipment grounding conductors and from the equipment enclosures and other grounded parts. The neutral conductor shall be colored white or gray in accordance with Section 200-6 (Means of Identifying Grounding Conductors) of the NEC.

In addition to the bonding required for the low voltage return current, each body and driving or crew compartment enclosure shall be bonded to the vehicle frame by a copper conductor. This conductor shall have a minimum ampacity rating of 115 percent of the nameplate current rating of the source specification label as defined in Section 310-15 (amp capacities) of the NEC. A single conductor, properly sized to meet the low voltage and line voltage requirements shall be permitted to be used.

MAIN OVERCURRENT PROTECTION DEVICE

A main overcurrent protection device shall be provided on the generator. The device shall be factory installed by the generator manufacturer.

WIRING METHODS

All fixed wiring systems shall be either metallic or nonmetallic liquid tight conduit rated at not less than 194 degrees Fahrenheit or shall be type SO or SEO with a WA suffix, rated at 600 volts at not less than 194 degrees Fahrenheit.

Electrical cord or conduit shall not be attached to chassis suspension components, water or fuel lines, air or air brake lines, fire pump piping, hydraulic lines, exhaust system components, or low voltage wiring.

All wiring shall be separated by a minimum of 12", or properly shielded, from exhaust piping and shall be separated from any fuel lines by a minimum of 6".

Electrical cord or conduit shall be supported within 6" of any junction box and at a minimum of every 24" of continuous run. Supports shall be made of nonmetallic materials or corrosion protected metal. All supports shall be of a design that does not cut or abrade the conduit or cable and shall be mechanically fastened to the vehicle.

NFPA 1901 110/220 VOLT POWER SOURCE TESTING

Electrical System Testing: _____

The wiring and permanently connected devices and equipment shall be subjected to a dielectric voltage withstand test of 900 volts for one minute. The test shall be conducted between live parts and the neutral conductor, and between live parts and the vehicle frame with any switches in the circuit closed position. This test shall be conducted after all body work has been completed.

Electrical polarity verification shall be made of all permanently wired equipment and receptacles to determine that connections have been properly made.

NFPA Operational Test

The apparatus manufacturer shall perform the following operational test and shall certify that the power source and any devices that are attached to the line voltage electrical system are properly connected and in working order:

The prime mover shall be started from a cold start condition and the line voltage electrical system loaded to 100 percent of the nameplate rating. The power source shall be operated at 100 percent of its nameplate voltage for a minimum of 2 hours unless the system meets category certification as defined in NFPA-1901.

120/240 VOLT ELECTRICAL EQUIPMENT INSTALLATION

All 120/240 electrical equipment shall be installed by the apparatus manufacturer. This shall include any item related to the system, including, but not limited to the following:

- Generator
- All scenelighting accessories.

- All outlets, and cord reels (where applicable)
- Breaker panel.

To maintain the integrity of the entire apparatus electrical system, all 120/240 equipment must be installed by the apparatus manufacturer. Installation by the apparatus manufacturer will also allow the electrical system to be NFPA tested during the U.L. pump certification testing procedure.

Installation of any portion of the 120/240 system by a dealer or service center will not be acceptable. There shall be no exception to this requirement.

BREAKER PANEL BOARD

Each individual circuit that is to be powered by the generator shall have a Branch Circuit Overcurrent Protection device (circuit breaker). The device shall be sized at not less than 15 amps in accordance with Section 240-3 (Protection of Conductors) of the NEC. If more than 6 individual branch circuits are required on the apparatus, the panelboard shall have a main breaker. The panelboard shall be readily visible and located so that there is unimpeded access to the panelboard controls.

All line voltage conductors located in the main panelboard shall be individually and permanently identified. The identification shall reference the wiring schematic or indicate the final termination point. When pre-wiring for future power sources or devices, the unterminated ends shall be labeled showing function and wire size.

LOAD BALANCING

The breaker panel shall be load balanced to allow the most efficient distribution of the AC load as possible.

BREAKER PANEL LOCATION

The breaker panel shall be located on the front wall of the driver front compartment.

FROG DISPLAY

There shall be a FROG D provided with the generator. The FROG D shall automatically sense a generator signal and begin displaying information. The digital meter display shall constantly monitor and display Voltage, Frequency (accurate to within 1 decimal point), and Current Draw on two separate lines. The display shall be capable of displaying total accumulated run time hours when the MODE button is pressed. This information shall be stored in a non-eraseable memory.

The frog display shall be located on the left side pump operators panel.

FRC OPTIMUM 1500 WATT TELESCOPING LIGHT

Two (2) Fire Research model OPA530-M15 bottom raising telescoping light(s) shall be mounted on the apparatus.

The lighthouse shall be a 1500 watt 220 volt AC and shall draw a maximum of 6.25 amps. The pole shall be secured in any raised position with a non directional advanced twist lock locking device. The twist lock mechanism shall have a knurled

positive grip.

The light(s) shall include a three wire coiled cord which is wired into the electrical distribution panel with an individual breaker for each light (if more than one light).

The light(s) shall be electrically tested so that they are safe for their intended use. The light(s) shall be certified by Underwriters Laboratories (UL) and shall meet/exceed NFPA 1901.

FIRE RESEARCH 1000 WATT TRI-POD LIGHT

One (1) Fire Research model OPA656-M10-ON-GM tri-pod telescoping light(s) shall be mounted on the apparatus.

The light shall have the following features:

- On/off switch underlighthouse.
- Wire guard to protect the lamp lens
- Model OP603 quick release mounting brackets.
- 120 volt outlet located at mounting location properly wired to circuit panel with individual breaker.

The lighthouse shall be a 1000 watt 120 volt AC and shall draw a maximum of 8.3 amps creating 22,000 lumens.

The light(s) shall be electrically tested so that they are safe for their intended use. The light(s) shall be certified by Underwriters Laboratories (UL) and shall meet/exceed NFPA 1901.

Passenger rear of body

NEMA L5-20R 20 AMP TWIST LOCK RECEPTACLE(S)

There shall be four (4) NEMA type L 5-20R 20 amp twist-lock receptacles provided

Wet Location

All wet location receptacle outlets shall be of the grounding type with a wet location cover and installed in accordance with Section 210-7 (Receptacles and Cord Connections) of the NEC.

All wet location receptacles shall be installed not less than 24" from the ground. Receptacles on off-road vehicles shall be a minimum of 30" from the ground. The face of any wet location receptacles shall be installed in a plane from vertical to not more than 45 degrees off vertical. No receptacle shall be installed in a face up position.

Dry Location:

All receptacles located in a dry location shall be of the grounding type. Receptacles shall not be less than 30 inches above the interior floor height.

Receptacle Wiring:

All wiring for both wet and dry locations shall be routed through liquid tight flexible conduit rated at not less than 194 degrees. Each receptacle shall be wired to the panel board which shall have separate breakers for each receptacle.

Outlet Location(s):

NEMA L5-20R 20 amp twist-lock receptacles shall be provided in the following locations:

220 VOLT RECEPTACLE(S)

There shall be two (2) 220 volt receptacles provided

Wet Location

All wet location receptacle outlets shall be of the grounding type with a wet location cover and installed in accordance with Section 210-7 (Receptacles and Cord Connections) of the NEC.

All wet location receptacles shall be installed not less than 24" from the ground. Receptacles on off-road vehicles shall be a minimum of 30" from the ground. The face of any wet location receptacles shall be installed in a plane from vertical to not more than 45 degrees off vertical. No receptacle shall be installed in a face up position.

Dry Location:

All receptacles located in a dry location shall be of the grounding type. Receptacles shall not be less than 30 inches above the interior floor height.

Receptacle Wiring:

All wiring for both wet and dry locations shall be routed through liquid tight flexible conduit rated at not less than 194 degrees. Each receptacle shall be wired to the panel board which shall have separate breakers for each receptacle.

Outlet Location(s):

220 volt receptacles shall be provided in the following locations:

D1 next to breaker panel and D3

110/220 VOLT OUTLET LOCATIONS

The 110/220 volt outlets shall be located as follows:

(2) on rear of body, one each side and (1) each side of pump compartment.

HANNAY ELECTRIC REWIND CORD REEL

There shall be two (2) Hannay model ECR1616-17-18 electric rewind cord reel(s) provided and properly mounted.

Each reel shall be wired to the electrical panel board through flexible PVC conduit. An individual breaker shall be provided at the panel for the reel.

A momentary push button switch shall be provided, mounted in close proximity to each reel for activating the electric rewind. The switch shall be labeled "CORD REEL REWIND".

A label shall be provided, mounted in a readily visible area adjacent to the reel to indicate the following:

- a). Current rating
- b). Current type
- c). Phase
- d). Voltage
- e). Total cable length.

CORD REEL MOUNTING LOCATION

The cord reel shall be mounted in the _____ compartment with access provided by opening the compartment doors.

Both in the D1 compartment

200' 12/3 SEOW-A ELECTRICAL CABLE

A continuous 200' length of 12/3 SEOW-A electrical cable shall be provided on the reel(s). The cable shall be rated at 600 volts at 194 degrees.

YELLOW ELECTRICAL CABLE

The electrical cable on the cord reel(s) shall be yellow.

EXTENDA-LITE LIGHTED GFI PROTECTED JUNCTION BOX(S)

There shall be two (2) Extenda-lite lighted junction box(es) provided and hardwired to the cable end(s). The cable shall have a strain relief where it enters the junction box.

The junction box shall have (3) individual L5-15 15 amp twist-lock single receptacles and (1) household GFI protected 5-15 outlet with springloaded weatherproof covers.

The first wired outlet shall be a GFI type outlet with all downstream outlets being GFI protected.

A large handle shall be provided on the top of the box to allow a gloved firefighter to carry the box with ease. The lighted box shall provide 360 degree lighting around the box which is capable of being seen from a minimum of 200 feet in complete darkness as per NFPA 1901. The box shall be designed to keep the exterior electrical components above 2" of standing water. The box shall be listed for use in wet locations.

JUNCTION BOX HOLDER

An aluminum treadbrite bracket shall be provided to hold the cord reel junction box.

CORD REEL ROLLER ASSEMBLY WITH BALL STOP

A roller assembly with ball stop shall be provided each cord reel reel. The assembly shall be mounted in a location that will help deflect the cable/hose from the surfaces adjacent to the reel.

FLUID CAPACITY LABEL

A permanent plate shall be mounted in the driver's compartment specifying the quantity and type of the following fluids used in the apparatus (if applicable) for normal maintenance:

1. Engine Oil.
2. Engine Coolant.
3. Transmission Fluid.
4. Pump Transmission Fluid.
5. Pump Primer Fluid (if applicable).
6. Drive Axle Fluid.
7. Air Conditioning Refrigerant.
8. Air Conditioning Lubrication Oil.
9. Power Steering Fluid.
10. Cab Tilt Mechanism Fluid (if applicable).
11. Transfer Case Fluid.
12. Equipment Rack Fluid (if applicable).
13. Air Compressor System Lubricant.
14. Generator System Lubricant.
15. Front tire cold pressure.
16. Rear tire cold pressure.
17. Maximum tire speed ratings.

OCCUPANCY LABEL

A permanent plate or label stating the maximum number of personnel allowed to ride on the apparatus at any one time, shall be provided and installed in clear view of the driver

SEATED AND BELTED LABEL

Permanent plate or label shall be provided stating "OCCUPANTS MUST BE SEATED AND BELTED WHEN APPARATUS IS IN MOTION" and visible from each seated position.

DO NOT RIDE LABEL

A permanent plate or label shall be attached to the appropriate areas of the apparatus stating that riding on the rear step or any exterior position on the apparatus is prohibited.

DO NOT WEAR HELMET LABEL

Permanent plate or label shall be provided stating "DO NOT WEAR HELMET WHILE SEATED" and visible from each

seated position.

MAXIMUM TIRE SPEED LABEL

A permanent plate or label shall be provided in the cab stating the maximum tire speed rating.

LENGTH, HEIGHT, WEIGHT LABEL

A permanent plate or label shall be provided in the cab stating the overall length, height and the gross vehicle weight rating (GVWR), in tons, of the completed apparatus.

The wording on this label shall indicate that the information on the plate/label was current at the time of manufacture and if the overall height of the apparatus changes while the vehicle is in service, the purchaser shall revise the height dimension on the plate.

UNDERWRITERS LABORATORIES TESTING

The apparatus shall undergo an Underwriters Laboratories Certification Test to insure that the completed apparatus meets the requirements of NFPA #1901. The certificate shall be provided to the purchaser upon completion. Underwriters Laboratories shall also perform the required testing on the entire installed electrical system. Absolutely no self-certification by the apparatus manufacturer shall be acceptable.

MANUFACTURER'S RECORD CERTIFICATION

The contractor shall supply, at the time of delivery, at least one copy of the following documents:

1. The manufacturers record of apparatus construction details, including the following information:
 - a. Owners name and address
 - b. Apparatus manufacturer, model, and serial number
 - c. Chassis make, model, and serial number
 - d. GAWR of front and rear axles
 - e. Front tire size and total rated capacity in pounds (kg)
 - f. Rear tire size and total rated capacity in pounds (kg)
 - g. Chassis weight distribution in pounds with water and manufacturer mounted equipment (front and rear)
 - h. Engine make, model, serial number, rated horsepower and related speed, and governed speed
 - i. Type of fuel and fuel tank capacity
 - j. Electrical system voltage and alternator output in amps
 - k. Battery make, model, and capacity in cold cranking amps (CCA)
 - l. Chassis transmission make, model, and serial number; and if so equipped, chassis transmission PTO(s) make, model, and gear ratio
 - m. Ratios of all driving axles
 - n. Maximum governed road speed
 - o. Pump make, model, rated capacity in gallons per minute (liters per minute where applicable), and serial number
 - p. Pump transmission make, model, serial number, and gear ratio
 - q. Auxiliary pump make, model, rated capacity in gallons per minute (liters per minute where applicable), and serial

number

- r. Water tank certified capacity in gallons or liters (if applicable).
 - s. Aerial device type, rated in vertical height in feet, rated horizontal height in feet, and rated capacity in pounds.
 - t. Paint manufacturer and paint number(s)
 - u. Company name and signature of responsible company representative
2. Certification of slip resistance of all stepping, standing, and walking surfaces
 3. If the apparatus has a fire pump, a copy of the pump manufacturers certification of suction capability.
 4. If the apparatus has a pump, a copy of the apparatus manufacturers approval for stationary pumping applications.
 5. If the apparatus has a pump, a copy of the engine manufacturers certified brake horsepower curve showing the maximum governed speed.
 6. If the apparatus has a pump, a copy of the pump manufacturers certification of the hydrostatic test.
 7. If the apparatus has a pump, a copy of the certification of inspection and test for the fire pump.
 8. If the apparatus has an aerial device, the certification of inspection and test for the aerial device.
 9. If the apparatus has an aerial device, all technical information required for inspections to comply with NFPA 1914.
 10. If the apparatus has a fixed line voltage power source, the certification of the test for the fixed power source
 11. If the apparatus is equipped with an air system, test results of the air quality, the SCBA fill station, and the air system installation
 12. Weight documents from a certified scale showing actual loading on the front axle, rear axle(s), and overall fire apparatus (with the water tank full but without personnel, equipment, and hose)
 13. Written load analysis and results of the electrical system performance tests
 14. When the apparatus is equipped with a water tank, the certification of water tank capacity

VEHICLE ROLLOVER STABILITY

The apparatus chassis shall be equipped with a stability control system and shall be certified to NFPA 1901 Rollover Stability requirements.

VEHICLE DATA LOGGER - CHASSIS PROVIDED

The vehicle data logger shall be provided from the chassis manufacturer.

SEAT BELT WARNING SYSTEM - CHASSIS PROVIDED

The seat belt warning system shall be provided from the chassis manufacturer.

ZICO UHH-1 FIRE HELMET MOUNTINGS

Five (5) Zico model UHH-1 fire helmet brackets shall be provided and mounted in the apparatus cab.

Ship loose for dealer install

PAINT PROCEDURE - PPG DELFLEET BASE COAT/CLEAR COAT

After the apparatus body has been fully assembled and all mounting holes, etc. have been either punched, machined, or drilled, the apparatus shall be fully disassembled for the paint process. The apparatus body shall not be mounted on the chassis during the paint process.

Masking or taping off of any portion of the apparatus during the paint process shall not be acceptable. All compartment doors shall be painted separate from the apparatus body.

All seams or flanges on the apparatus body shall be caulked or properly sealed to prevent moisture accumulation in flanged areas.

PAINT PROCESS:

The apparatus body paint procedure shall consist of an eight (8) step finishing process as follows:

1. Manual Surface Preparation: All exposed metal surfaces on the apparatus exterior shall be thoroughly cleaned as per SSPC-SP1. All imperfections on the exterior metal surface shall be removed or filled prior to the priming process. All exposed metal shall be thoroughly abraded using a dual orbital air power sander as per SSPC-SP3.
2. Cleaning and Treatment: All surfaces shall be chemically cleaned using PPG DX436 was and grease remover cleaning agent to remove all dirt. Oil,grease and metal oxides to ensure proper adhesion as per SSPC-SP1.
3. Self-etching Primer Application: PPG Delfleet F3960 two component acid etching primer shall be applied to the bare metal as per bulletin DFT-041.
4. Primer/Surfacer Application: PPG K36 two component urethane primer/surfacer shall be applied to the acid etching primer.
5. Dual Orbital Sanding: The primer/surfacer shall be thoroughly sanded to a superior smooth surface.
6. Cleaning: After sanding in step #5, all surfaces shall be chemically cleaned again using PPG DX436 was and grease remover to remove all oil and dirt. The surface to be painted shall be clean of all oil, grease, and dirt to ensure proper adhesion as per SSPC-SP1.
7. Primer Sealer Application: PPG Delfleet F3985/F3986/F3987 two component urethane primer/sealer shall be applied over the thoroughly sanded and cleaned primer/surfacer as per bulletin DFT-054.
8. Topcoat Application: Two coats of PPG Delfleet FBCH basecoat color two component polyurethane paint shall be applied to the primer sealer as per bulletin DFT-001. The base color shall be followed by two coats of PPG Delfleet F3905 two component polyurethane clearcoat finish as per bulletin DFT-055.

DRY FILM TESTS

The apparatus manufacturer shall perform dry film readings on the painted apparatus to insure adequate paint thickness. The total dry film readings shall be a minimum of 6.4 mils average. These readings must be measured with an ETG ferrous/nonferrous digital dry film thickness measurement instrument. Readings must be taken from a minimum of 12 separate locations on the apparatus body. The apparatus manufacturer must record these tests and make them available to the purchaser upon request.

PAINT PROCESS SYSTEM AUDIT

The apparatus manufacturer shall strictly follow the documented paint application procedure as provided by the paint manufacturer. The paint manufacturer shall also perform an annual audit of the paint process.

PPG CERTIFIED 10 YEAR PAINT WARRANTY

The apparatus body exterior finish paint shall have a 10 year warranty per the terms and conditions of the PPG written warranty. The warranty shall be certified by the manufacturer of the paint. Documentation of this shall be provided. Any warranty that is extended by the apparatus manufacturer and not backed by the paint manufacturer will not be acceptable.

ELECTROLYSIS CORROSION CONTROL

The apparatus shall be assembled using ECK or electrolysis corrosion control, on all high corrosion potential areas, such as door latches, door hinges, trim plates, fenderettes, etc. This coating is a high zinc compound that shall act as a sacrificial barrier to prevent electrolysis and corrosion between dissimilar metals. This shall be in addition to any other barrier material that may be used.

APPARATUS BODY UNDERCOATING

The apparatus body shall be undercoated after assembly is completed. A bituminous based automotive type undercoat shall be used. Care shall be taken to avoid undercoat application to items that would hinder normal maintenance.

THERMOPLASTIC APPARATUS BODY COMPARTMENT INTERIOR FINISH

The interior of all apparatus body compartments shall be finished with a gray thermoplastic coating.

TIRE PRESSURE VISUAL INDICATOR

Valve stem mounted visual indicators shall be provided on each tire. The indicators shall identify the following conditions:

ALL GREEN. - Tire is properly inflated.

HALF GREEN/HALF RED - Tire is approximately 10% under inflated

ALL RED - Tire is 20% or more under inflated.

LETTERING

The Apparatus Dealer shall provide and apply all vehicle lettering and numbering.

NFPA REFLECTIVE STRIPE - DEALER SUPPLIED/INSTALLED

The reflective stripe necessary on the sides, front and rear of the apparatus shall be provided and applied by the Apparatus Dealer.

REAR CHEVRON STRIPING - DIAMOND GRADE

A minimum of 50 percent of the rear vertical surface of the apparatus shall be covered with 6 inch alternating 983-71

red and 983-23 fluorescent yellow green "Diamond grade" retroreflective striping. The striping shall slop downward away from the centerline of the apparatus at a 45 degree angle.

The retroreflective material shall conform to the requirements of ASTM D 4956 "Standard Specification for Retroreflective Sheeting for Traffic Control", Type I or better.

ENGINE EXHAUST

The exhaust pipe from the engine shall be ahead of the rear wheels. A shield shall be provided between the apparatus body and the exhaust pipe if necessary to deflect heat away from the body. The exhaust system shall be designed and installed by the chassis manufacturer to comply with EPA equipment requirements.

FUEL FILL

The chassis fuel fill shall be located in the driver's side rear wheel cowl. The fill shall be located behind a highly polished stainless steel hinged door with flush latch. The fuel fill shall be properly vented.

FRONT/REAR MUDFLAPS

Heavy duty black rubber mudflaps shall be provided on the front and rear wheels. The mudflaps shall be attached to the apparatus in the front and the rear wheel well area using heavy duty stainless steel retention straps that are secured into place using stainless steel fasteners.

FRONT/REAR AXLE NUT COVERS AND BABY MOONS

The front and rear axle shall have stainless steel nut covers and baby moons.

REAR PULLING EYES

Two rear 3/4" CRS pulling eyes shall be provided under the rear tailboard. The eyes shall have a minimum of a 3" clear opening for passing chains through the eye.

"AS BUILT" APPARATUS BODY OWNERS MANUAL CD (2)

Two "as built" apparatus body owners manual CD's (compact disc) shall be provided with the apparatus. All apparatus body electrical schematics shall be provided as well as all instructional and maintenance manuals on components provided and permanently mounted on the apparatus. A copy of the final apparatus body build specifications shall also be included on the CD. The CD's shall be "read only" and shall not allow modification.

To eliminate component confusion, generic CD's with equipment that is not provided on the apparatus body shall not be acceptable.

2 LB. BAG OF FASTENERS

A 2 lb. bag of fasteners, as used in the final assembly of the apparatus, shall be provided.

DUO-SAFETY 6FP 6' FIBERGLASS PIKE POLE

There shall be one (1) Duo-Safety model 6FP 6' fiberglass pike pole(s) shall be provided and mounted on the apparatus.

DUO-SAFETY 8FP 8' FIBERGLASS PIKE POLE

There shall be one (1) Duo-Safety model 8FP 8' fiberglass pike pole shall be provided and mounted on the apparatus.

ZIAMATIC SAC-44 ALUMINUM WHEEL CHOCKS

One set of two Zico model SAC-44 folding wheel chocks shall be provided. Two "underbody" horizontal brackets (SQCH-44-H) shall be provided and installed under the body compartments.

TERMS AND CONDITIONS

1. **BID FORM:**
Bids must be submitted on this form only and bear the handwritten signature of an authorized representative of the firm to be considered valid. Unless otherwise stated by the City, no bidder may withdraw his bid within a period of thirty (30) days after the date set for the opening of bids.

2. **BID RETURN ENVELOPE:**
ALL bids must be sealed and returned in the official City of Athens BID RETURN ENVELOPE included in the bid package. If the bid documents you are returning exceed what this envelope can hold, tape the completed bid return envelope to the OUTSIDE of the envelope/package that you are using.

ALL bids must be SEALED and properly identified with the name and address of bidder; the date, time, bid number and project title on the OUTSIDE of the bid return envelope.

3. **INSURANCE:** A sheet of minimum “INSURANCE REQUIREMENTS” shall be attached to these terms and conditions when applicable. This sheet is provided for you and your insurance company.

4. Prices shall be quoted FOB Athens, TN. Delivery to City of Athens locations shall be without additional charge unless otherwise requested by the City of Athens.

5. Failure to examine any drawings, specifications, and instructions will be at bidder’s risk. If bidder is in doubt as to the true meaning of any part of the drawings, specifications, and instructions or other documents, he should submit a written request for an interpretation to the Director of Finance. An interpretation of the document will be made only by addendum issued by the Director of Finance to each firm to whom an invitation was forwarded. The City will not be responsible for explanations or interpretations of bid documents except as issued in accordance herewith.

6. Where a brand or trade name appears in the specifications, it is understood that the brand or trade name referred to, or its approved equivalent, shall be furnished. If no mention is made of any exceptions, it is assumed that he is bidding on the article mentioned and not an approved equivalent. If a brand name is listed in the bid package and a vendor intends to bid another name it is the responsibility of the bidder to notify the Director of Finance of his intent to do so by seven (7) days prior to bid opening. This is to allow time to evaluate equipment or product. Failure to do so disqualifies you as a bidder. An approved equivalent is defined as a bid item that meets or exceeds every specification provided in the bid specifications and is approved by the City of Athens. However, the City of Athens reserves the right to choose a specific name brand if standardizing to

- accommodate parts supply, knowledge of maintenance, and to prevent the purchase of specialty tools.
7. The bidder is requested to attach brochure-type information and written specifications on the supplies furnished. All guarantees and warranties should be clearly stated.
 8. Prices quoted for all machinery, equipment, and vehicles shall include complete parts manual(s), maintenance manual(s), service manual(s), and operator's manual(s) without additional charge and are to be delivered with the unit.
 9. Bids and modifications or corrections thereof received after the closing time specified will not be considered. The City is not responsible for delays in delivery by mail, courier, etc.
 10. Any exceptions to these terms or conditions or deviations from written specifications will be shown in writing and attached to the bid form.
 11. Any alteration, erasure, additions to or omission of requested information, change of the specifications or bidding schedule, is made at the risk of the bidder and shall result in the rejection of the bid unless such changes are authorized by the specifications.
 12. In the event cash discounts are offered by the bidder, the discount date shall begin with the date of the invoice or the date of receipt of all material covered by the order/contract, whichever is the later date.
 13. Charges for boxing or cartage will not be allowed unless previously agreed upon.
 14. Default in promised delivery and failure to comply with specifications authorizes the City to purchase supplies elsewhere and charge the difference to defaulting Vendor.
 15. Bidder agrees to defend and save the City of Athens from and against all demands, claims, suits, costs, expenses, damages, and judgments based upon infringement of any patents relating to goods specified in this order or the ordinary use or operation of such goods by the City or use or operation of such goods in accordance with bidder's direction.
 16. In case of error or discrepancy in the mathematics of the bid price, the unit prices shall prevail.
 17. By submission of a signed bid, the bidder certifies total compliance with Title VI and Title VII of the Civil Rights Act of 1964, as amended and all regulations promulgated thereunder, as the City of Athens does not discriminate based on

race, color, or national origin in federal or state sponsored programs, pursuant to Title VI of the Civil Rights Act of 1964 (42 USC 2000d).

18. Contracts and purchases will be made or entered into with the lowest, responsible, compliant bidder meeting specifications for the particular grade or class of material, work or service desired in the best interest and advantage to the City of Athens. Responsible bidder is defined as a bidder whose reputation, past performance, and business and financial capabilities are such that he would be judged by the appropriate City authority to be capable of satisfying the City's needs for a specific contract or purchase order.
19. The City reserves the right to determine the low bidder either on the basis of the individual items or on the basis of all items included in its INVITATION TO BID, unless otherwise expressly provided in the INVITATION TO BID. The City reserves the right to accept any item or group of items of any kind and to modify or cancel in whole or in part, its INVITATION TO BID.
20. The City reserves the right to determine the low bidder by durability and maintenance cost over the life of the vehicle or equipment. This may be done by means of past experience or research. Initial cost may not determine low bid.
21. All contracts or purchase orders issued for this award will be governed by the laws of the State of Tennessee.

Bidder's company name, signature, and date indicate that these terms and conditions have been read, understood, and accepted.

DATE: _____

BIDDER'S COMPANY NAME _____

COMPANY REPRESENTATIVE:

(Printed Name)

(Written Signature)

TELEPHONE _____

FAX _____

EMAIL _____

THIS DOCUMENT MUST BE SIGNED AND RETURNED WITH BID

CITY OF ATHENS
STANDARD INSURANCE REQUIREMENTS

1. Statutory Workers' Compensation Insurance
 - (a) Employers Liability:
 - Bodily Injury by Accident - \$100,000 each accident
 - Bodily Injury by Disease - \$500,000 policy limit
 - Bodily Injury by Disease - \$100,000 each employee
- NOTE: WC coverage may be waived if the contractor is the sole proprietor only, with no employees, and can provide the City of Athens with an APPROVED I-5 form from the Department of Labor.
2. Comprehensive General Liability Insurance
 - (a) \$700,000 limit of liability per occurrence for bodily injury and property damage.
 - (b) Comprehensive form covering all owned, non-owned, and hired vehicles
3. Auto Liability Insurance
 - (a) \$1,000,000 limit of liability per occurrence for bodily injury and property damage.
 - (b) Comprehensive form covering all owned, non-owned, and hired vehicles
4. City of Athens (and any applicable Authority) should be shown as an additional insured on General Liability, Auto Liability, and Umbrella Liability policies.
5. The cancellation provision should provide 30 days notice of cancellation.
6. Certificate Holder should read:
 - City of Athens
 - 815 N. Jackson Street
 - Athens, TN 37303
7. Insurance company must have an A.M. Best Rating of A-6 or higher.
8. Insurance company must be licensed to do business by the Tennessee Secretary of State.
9. Insurance company must be authorized to do business in Tennessee by the Tennessee Insurance Department.

FROM:

NAME/ADDRESS OF BIDDER

TO BE OPENED: DATE _____ TIME _____

BID/RFQ NO. _____ PROJECT _____

CONTRACTOR'S REQUIREMENTS:

NAME _____ LICENSE NO. _____

EXPIRATION DATE _____ CLASSIFICATION _____

SUB REQUIREMENTS:

NAME _____ LICENSE NO. _____

EXPIRATION DATE _____ CLASSIFICATION _____

NAME _____ LICENSE NO. _____

EXPIRATION DATE _____ CLASSIFICATION _____

NAME _____ LICENSE NO. _____

EXPIRATION DATE _____ CLASSIFICATION _____

NAME _____ LICENSE NO. _____

EXPIRATION DATE _____ CLASSIFICATION _____

ANY OTHER SUBS, LIST ON SEPARATE PAPER AND ATTACH TO BACK OF ENVELOPE

TO:

**PURCHASING DIVISION
CITY OF ATHENS
815 N. Jackson Street
P.O. Box 849
Athens, TN 37371-0849**

NOTICE TO BIDDERS

When finalizing your bid proposal, please use the following checklist to ensure that you have signed and included all necessary documents for your bid to be considered. FAILURE TO INCLUDE ALL REQUESTED DOCUMENTS SHALL DISQUALIFY YOUR BID AND IT WILL NOT BE CONSIDERED.

Have you:

- ☐ **Signed the bid request form and included it in the bid submittal**
- ☐ **Signed the Terms and Conditions and included it in the bid submittal**
- ☐ **Provided a certificate of insurance according to the City's Insurance Requirements naming the City of Athens, TN as an additional insured, or a letter from your insurance provider stating that insurance requirements will be met upon the bid being awarded and included it in the bid submittal**
- ☐ **Completely filled out any bid cost sheets or other information stating the amount of your bid and included it in the bid submittal**
- ☐ **Filled out and returned your bid in a sealed envelope and taped the bid return address sheet to the outside of the bid submittal.**